EP3010

GENERAL

MINOLTA

CONTENTS

1. SPECIFICATIONS G-1
2. PRECAUTIONS FOR INSTALLATION G-4
3. PRECAUTIONS FOR USE G-5
4. HANDLING OF THE CONSUMABLES G-6
5. SYSTEM OPTIONS G-7
1. CROSS-SECTIONAL VIEW 1
2. COPY PROCESS 2
3. DRIVE SYSTEM 4
4. SEQUENTIAL EXPLANATION 5
5. WATCHDOG (CPU OVERRUN MONITOR) FUNCTION 9
    5-1. Configuration 9
    5-2. Watchdog Function Post-Processing 10
6. MALFUNCTION BYPASS FUNCTION 11
    6-1. Candidates for Isolated Malfunctions 11
7. IMAGE STABILIZATION SYSTEM 12
    7-1. AIDC Sensor 13
    7-2. Image Stabilization Control Processing Timing 14
    7-3. Details of Image Stabilization Controls 15
8. IMAGING UNIT 17
    8-1. Imaging Unit Drive 18
    8-2. Imaging Unit Toner Recycling 18
9. PC DRUM 19
10. DRUM CHARGING 20
11. IMAGE ERASE LAMP 21
12. OPTICAL SECTION 25
    12-1.Exposure Lamp 26
    12-2.AE Sensor 27
    12-3.Lamp Reflectors 28
    12-4.Aperture Plates 28
    12-5.Scanner and 2nd/3rd Mirror Carriage Movement 29
    12-6.4th Mirror Movement 31
    12-7.Lens Movement 32
13. ORIGINAL SIZE DETECTING SENSORS 33
    13-1.Identification of Original Size Detecting Sensors 33
    13-2.Original Size Detecting Operation 33
    13-3.Sensor Locations 34
    13-4.Size Detection 35
    13-5.Original Size Detection Timing 36
    13-6.Original Cover Angle Detection 37
14. DEVELOPMENT 38
    14-1.ATDC Sensor 39
    14-2.Magnet Roller 41
    14-3.Developing Bias 42
    14-4.Doctor Blade 43
    14-5.Magnet Roller Lower Collector 43
15. TONER HOPPER 44

15-1.Toner Hopper Locking/Unlocking 44
15-2.Toner Replenishing 44
15-3.Shutter 45
15-4.Toner Hopper Home Position Detection 45
15-5.Toner Bottle Vibration 46
15-6.Toner Replenishing Control 46
16. PAPER TAKE-UP/FEED SECTION 47
16-1.Drawer-in-Position Detection 48
16-2.Drawer Paper Lifting/Lowering Mechanism/Control 49
16-3.Paper Level Detection 51
16-4.Paper Empty Detection 52
16-5.Universal Tray (2nd Drawer) Paper Size Detection 53
16-6.Paper Take-Up Mechanism 56
(1) Paper Take-Up Mechanism 56
(2) Paper Separating Mechanism 57
(3) Paper Pressure Releasing Mechanism 58
(4) Paper Take-Up Roll Retraction Mechanism 58
16-7.Drawer Paper Take-Up Control 59
(1) Paper Take-Up Motor Control 59
(2) Paper Take-Up Retry Control 60
(3) Paper Take-Up Interval Control 60
(4) Double Feed Paper Take-Up Control 60
16-8.Vertical Paper Transport 61
17. MULTI BYPASS TABLE 62
17-1.Paper Take-Up Mechanism 63
17-2.Paper Take-Up Retry Control 64
17-3.Paper Separating Mechanism 65
17-4.Paper Empty Detection 65
18. SYNCHRONIZING ROLLERS 66
18-1.Upper Synchronizing Roller Positioning 67
18-2.Paper Dust Remover 67
18-3.Synchronizing Roller Control 68
19. IMAGE TRANSFER AND PAPER SEPARATION 69
20. MAIN ERASE LAMP 71
21. PAPER SEPARATOR FINGERS 72
22. CLEANING UNIT 74
22-1.Cleaning Unit 74
22-2.Cleaning Bias 75
23. PAPER TRANSPORT 76
24. FUSING UNIT 77
24-1.Fusing Temperature Control 78
24-2.Fusing Rollers Pressure Mechanism 79
24-3.Brush Roller/Cleaning Roller 80
25. EXIT UNIT 81
25-1.Upper/Lower Separator Fingers 81
26. EXIT/DUPLEX SWITCHING UNIT 82
27. DEHUMIDIFYING SWITCH (OPTION) 83

28. COOLING FAN 84
29. OPTICAL SECTION COOLING FAN 85
30. MEMORY BACKUP 86
31. PRECAUTIONS FOR HANDLING THE PWBs 1
31-1.Precautions for Transportation and Storage 1
31-2.Precautions for Replacement and Inspection 1
32. CONTROL PANEL KEYS AND TOUCH PANEL 2
32-1.Control Panel Keys 2
32-2.Explanation of the Touch Panel 3
(1) Basic Screen 3
(2) Warning Screens 4
33. FUNCTIONS OF SWITCHES AND POINTS ON PWB 5
33-1.PWB Location 5
33-2.Master Board PWB-A 5
34. USER'S CHOICE MODE 7
34-1.User's Choice Selection Screen 7
34-2.User's Choice Function Setting Procedure 7
34-3.User's Choice Function Tree 8
34-4.Settings in the User's Choice 9
35. TECH. REP. MODE 16
35-1.Tech. Rep. Mode Menu Screen 16
35-2.Tech. Rep. Mode Function Setting Procedure 16
35-3.Tech. Rep. Mode Function Tree 17
35-4.Settings in the Tech. Rep. Mode 19
(1) Function 19
(2) Tech. Rep. Choice 20
(3) System Input 23
(4) Counter 24
(5) I/O Check 31
(6) ROM Version 32
(7) RD Mode 33
(8) Accessory Test 35
(9) Level History 37
(10) Machine Status 38
(11) Admin. Mode 38
36. SECURITY MODE 39
36-1.Security Mode Setting Procedure 39
36-2.Security Mode Function Tree 40
36-3.Setting in the Security Mode 40
37. FACTORY SETTING 43
37-1.Factory Setting Menu Screen 43
37-2.Factory Setting Function Setting Procedure 43
37-3.Factory Setting Function Tree 44
(1) Function 44
(2) Adjust 46
38. SERVICE INSTRUCTIONS 1
38-1.INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs 1

38-2.HANDLING OF THE PC DRUM 1
38-3.PARTS WHICH MUST NOT BE TOUCHED 4
(1) Screws 4
(2) Variable Resistors on Board 4
(3) Other Screws 4
39. DISASSEMBLY/REASSEMBLY 5
39-1.DOORS, COVERS, AND EXTERIOR PARTS: IDENTIFICATION AND REMOVAL PROCEDURES 5
39-2.REMOVAL OF PWBs 8
39-3.BELT INSTALLATIONS 10
39-4.PAPER TAKE-UP/TRANSPORT SECTIONS 11
(1) Removal of the Paper Take-Up Unit 11
(2) Removal of the Paper Take-Up Roll Assy 12
(3) Cleaning of the Paper Take-Up Roll, Feed Roll, and Separator Roll 13
(4) Removal of the Suction Unit 13
(5) Disassembly of the Suction Unit 14
(6) Disassembly of the Multi Bypass Table 15
39-5.OPTICAL SECTION 20
(1) Removal of the Lens Drive Cable 20
(2) Winding of the Lens Drive Cable 21
(3) Removal of the Scanner Drive Cable 22
(4) Winding of the Scanner Drive Cable 24
(5) Removal of the Scanner 26
(6) Cleaning of the Exposure Lamp 26
(7) Cleaning of the 1st/2nd/3rd Mirrors 26
(8) Cleaning of the Lens and 4th Mirror 27
(9) Cleaning of the Optical Section Cooling Fan Filter 27
39-6.IMAGING UNIT 28
(1) Disassembly, Cleaning, and Replacement of the Imaging Unit 28
(2) Cleaning of Main Erase Lamp 32
(3) Cleaning of Image Erase Lamp 33
39-7.PC DRUM CHARGE CORONA/IMAGE TRANSFER CORONA UNIT 34
(1) Cleaning of the PC Drum Charge Corona Housing 34
(2) Cleaning of the PC Drum Charge Corona Grid Mesh 35
(3) Cleaning of the Comb Electrode 35
(4) Cleaning of the Image Transfer/Paper Separator Coronas Wires ... 35
(5) Cleaning of the Image Transfer/Paper Separator Coronas Housing 36
(6) Cleaning of the Lower Pre-Image Transfer Guide Plate 36
(7) Replacement of the Ozone Filter 36
39-8.FUSING UNIT 37
(1) Removal of the Fusing Unit 37
(2) Cleaning of the Pre-Fusing Guide Plate 38
(3) Removal of the Upper Fusing Roller 38
(4) Cleaning of the Upper Fusing Roller 40
(5) Cleaning of the Upper Paper Separator Fingers 40
(6) Cleaning of Fusing Thermistor 1, 2 41
(7) Cleaning of the Fusing Thermoswitch 41

(8) Removal of the Brush Roller 41
(9) Cleaning of the Brush Roller 41
(10) Removal of the Lower Fusing Roller 42
(11) Cleaning of the Lower Fusing Roller 42
(12) Cleaning of the Lower Paper Separator Fingers 42
(13) Disassembly of the Exit/Duplex Switching Unit 43
40. ADJUSTMENT 46
40-1.JIGS AND TOOLS USED 46
40-3.ADJUSTMENT OF SWITCHES 48
(1) Adjustment of Front Door Interlock Switch 48
40-4.ELECTRICAL/IMAGE ADJUSTMENTS 49
(1) Adjustment of the Optimum Exposure Setting in the Auto Mode 49
(2) Adjustment of the Optimum Exposure Setting in the Manual Mode 50
(3) Adjustment of the ATDC Sensor 51
(4) Adjustment of the Aperture Blades 52
(5) Adjustment of the Multi Bypass Table Reference Position 53
(6) Adjustment of the 1st/2nd Drawer Reference Position 54
(7) Adjustment of the Zoom Ratio in the Feeding Direction (“A3 Feed Direction Mag. Ratio” of Adjust Mode) 55
(8) Adjustment of the Leading Edge Registration 57
(9) Adjustment of the Image Leading Edge Erase Width 62
(10) Adjustment of the Image Trailing Edge Erase Width 64
(11) Adjustment of the Image Erase Lamp Position 66
40-5.OTHER ADJUSTMENTS 67
(1) Adjustment of the Scanner/Mirrors Carriage Position 67
(2) Adjustment of the Gap Between the Doctor Blade and Sleeve Roller 68
(3) Adjustment of the PC Drum Paper Separator Fingers Position 69
(4) Adjustment of the Original Size Detecting Board 70
41. MISCELLANEOUS 71
41-1.INSTALLATION OF ORIGINAL SIZE DETECTING SENSORS FD3/CD2 (OPTION; STANDARD FOR 200V AREAS) 71
41-2.INSTALLATION OF THE PLUG-IN COUNTER MOUNTING BRACKET (OPTION) 72
42. INTRODUCTION 1
42-1.General Precautions 1
42-2.How to Use This Book 1
42-3.Reading the Text 1
43. I/O PORT CHECK 2
43-1.Controlled Parts Check Procedure 2
43-2.I/O Port Check List 5
3. PAPER TRANSPORT FAILURE 15
3-1. Paper Misfeed 15
3-2. Misfeed Detection Types and Detection Timings 17
3-3. Misfeed Troubleshooting Procedures 19
(1) Copier Paper Take-Up Misfeed 19
(2) Transport/Separator Misfeed 21
(3) Multi Bypass Misfeed 23

(4) Fusing/Exit Misfeed 25
(5) PF-206 Paper Take-Up Misfeed 27
(6) PF-112 Paper Take-Up Misfeed 29
(7) AD-11 Vertical Transport/Storage Misfeed 31
(8) AD-11 Paper Take-Up Misfeed 34
4. MALFUNCTIONS 36
4-1. Detection Timings Classified by Malfunction Codes 36
4-2. Troubleshooting Procedures by Malfunction Codes 48
(1) C0000: Main Drive Motor M9's Failure to Turn
C0001: Main Drive Motor M9 Turning at Abnormal Timing 48
(2) C0010: PC Drive Motor M1's Failure to Turn
C0011: PC Drive Motor M1 Turning at Abnormal Timing 50
(3) C004A: Optical Section Cooling Fan Motor M2's Failure to Turn
C004b: Optical Section Cooling Fan Motor M2 Turning at Abnormal Timing
C004C: Cooling Fan Motor M7's Failure to Turn 52
(4) C0070: Toner Replenishing Motor M8's Failure to Turn
C0071: Toner Replenishing Motor M8 Turning at Abnormal Timing 54
(5) C0200: PC Drum / Image Transfer / Separator Charge Corona Malfunction 55
(6) C03##: Master Board/Harness Malfunctions 56
(7) C0400: Exposure Lamp LA1's Failure to Turn ON
C0410: Exposure Lamp LA1 Turning ON at Abnormal Timing 57
(8) C0500: Warming-up Failure
C0510: Abnormally Low Fusing Temperature
C0520: Abnormally High Fusing Temperature 59
(9) C0600: Scanner Motor M4 Malfunction
C06FX: Signal Failure
C0610: Lens Motor M5 Malfunction
C0620: Mirror Motor M6 Malfunction 61
(10) C0910: 2nd Drawer Upward Motion Failure
C0914: 2nd Drawer Paper Lift-Up Motor M14's Failure to Turn
C0920: 1st Drawer Upward Motion Failure
C0924: 1st Drawer Paper Lift-Up Motor M13's Failure to Turn 63
(11) C0900: 3rd Drawer Upward Motion Failure
C0904: 3rd Drawer Paper Lift-Up Motor M24's Failure to Turn
C0950: 4th Drawer Upward Motion Failure
C0954: 4th Drawer Paper Lift-Up Motor M25's Failure to Turn 65
(12) C0990: Main Tray Upward Motion Failure
C0991: Main Tray Downward Motion Failure
C0992: Main Tray Downward Motion Failure
C0993: Main Tray Upward Motion Failure
C0994: Main Tray Elevator Motor M26's Failure to Turn 67
(13) C0998: Shifter Transfer Failure
C0999: Shifter Return Failure
C099A: Shifter Return Failure
C099b: Shifter Transfer Failure
C099C: Paper Shift Motor M27's Failure to Turn 69

(14) C099E: Shift Gate Position Detecting Failure
C099F: Shift Gate Position Detecting Failure
C0996: 3rd Drawer Lock Release Failure
C0F79: Paper Empty Sensor Failure 71
(15) C0d00: Duplex Unit Front/Rear Edge Guide Plates Home Position Detection Failure
C0d20: Duplex Unit Gate Unit Home Position Detection Failure
C0d50: Duplex Unit Drive Motor M31's Failure to Turn
C0d51: Duplex Unit Drive Motor M31 Turning at Abnormal Timing 73
(16) C0F02: Original Size Detecting Board UN2 Failure
C0FE1 to C0FFF: Original Size Detecting Sensor Failure 75
(17) C0F10: AE Sensor Board PWB-H Failure 77
(18) C0F20: AIDC Sensor Board PWB-G Variation Correction Failure
C0F22: AIDC Sensor Board PWB-G Grid Voltage Correction Failure
C0F23: AIDC Sensor Board PWB-G Exposure Correction Failure 78
(19) C0F30: ATDC Sensor UN3 Failure
C0F31: ATDC Sensor UN3 Failure 79
4-3. Power Malfunctions 80
(1) Main Relay Does Not Turn ON 80
(2) Main Relay Turns ON But the Control Panel Gives No Display 82
4-4. Miscellaneous 83
5. IMAGE FAILURE 84
5-1. Image Failure Troubleshooting 84
5-2. Initial Checks 84
5-3. Troubleshooting Procedures Classified by Image Failures 86

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1 SPECIFICATIONS

NAME	:	EP3000 Most Areas Except Europe EP3010 European Areas
TYPE	:	Desktop (with Stationary Platen)
PHOTOCONDUCTOR	:	Organic Photoconductor
COPYING SYSTEM	:	Electrostatic Indirect Image Transfer to Plain Paper
PAPER FEEDING SYSTEM	:	3-Way Feeding 1st Drawer: Fixed Paper Size Tray (500 sheets of paper, USA Area: 550 sheets of paper) 2nd Drawer: Universal Tray (500 sheets of paper, USA Area: 550 sheets of paper) Multi Bypass Table (50 sheets of paper)
EXPOSURE SYSTEM	:	Mirror Scanning, Slit Exposure
DEVELOPING SYSTEM	:	New Micro-Toning System
CHARGING SYSTEM	:	Comb Electrode DC Negative Corona with Scorotron System
IMAGE TRANSFER SYSTEM	:	Visible Image Transfer by means of a Single-Wire DC Negative Corona with Corotron System
PAPER SEPARATING SYSTEM	:	AC Corona with Corotron System, plus Paper Separator Finger
FUSING SYSTEM	:	Heat Roller
PAPER DISCHARGING SYSTEM	:	Charge Neutralizing Brush
MAXIMUM ORIGINAL SIZE	:	Metric-A3L; Inch-11" × 17"L (L: Lengthwise)

COPY MEDIUM

		1st Drawer (Automatic feeding)	2nd Drawer (Automatic feeding)	Multi Bypass Table
Medium	Plain paper (60 to 90 g/m²)	❍	❍	❍
	Translucent paper	–	–	❍
	Transparencies	–	–	❍
	Thick paper (91 to 157 g/m²)	–	–	❍
	Recycled paper	❍	❍	❍
Dimensions	Maximum (Width × Length)	297 × 432 mm	297 × 432 mm	297 × 432 mm
	Minimum (Width × Length)	140 × 182 mm	140 × 182 mm	100 × 140 mm

❍: Permissible –: Not permissible

MULTIPLE COPIES	:	1 to 999
WARMING-UP TIME	:	60 sec. or less with room temperature of 23°C and rated power voltage
FIRST COPY TIME	:	A4C or 8-1/2" × 11"C: 6.0 sec. or less (in Full size Mode using 1st Drawer)

CONTINUOUS COPY SPEED (copies/min.): Fed from 1st Drawer

Area	Zoom Ratio / Size	×1.000
Metric	A3L	17
	A4L	23
	A4C	✻30/31
	B4L	19

Area	Zoom Ratio / Size	×1.000
Inch	11" × 17" (L)	17
	8-1/2" × 11" (L)	24
	8-1/2" × 11" (C)	30
	5-1/2" × 8-1/2" (L)	30

L: Lengthwise; C: Crosswise
✻ 30/31: Depending on market area

ZOOM RATIOS

	Mode / Area	Metric	Inch
Fixed	Full Size	× 1.000	× 1.000
	Reduction	× 0.816 × 0.707 × 0.500	× 0.785 × 0.733 × 0.647 × 0.500
	Enlargement	× 1.154 × 1.414 × 2.000	× 1.214 × 1.294 × 1.545 × 2.000
Variable	50% to 200% (in 0.1% increments)		

LENS	:	Through Lens (F = 8, f = 180 mm)
EXPOSURE LAMP	:	Halogen Frost Tube Lamp
FUSING TEMPERATURE	:	195°C

POWER/CURRENT CONSUMPTION (Copier Only)

Voltage	Exposure Lamp (Rating)	Fusing Heater Lamp (Rating)	Max. Power Consumption	In Standby
115V	80V 262W	115V 900W	1280W	940W
120V	80V 262W	115V 900W	1340W	1000W
127V	80V 262W	115–120V 900W	1410W	1070W
220–240V	160V 290W	220V 900W	1300–1430W	940–1070W

POWER REQUIREMENTS : 115 V, 120 V, 127 V, 220-240 V; 50/60 Hz

ENVIRONMENTAL CONDITIONS

Temperature	10 to 30°C with a fluctuation of 10°C or less per hour
Humidity	15 to 85% RH with a fluctuation of 10% RH or less per hour
Ambient Illumination	3,000 lux or less
Levelness	1° (1.75 mm/100 mm)

DIMENSIONS (Copier Only) : Width .... 650 mm
Depth .... 688.5 mm (27”)
Height ... 513 mm (20-1/4”) (including Original Cover)

WEIGHT : 70.0 kg (154-1/4 lbs)

2 PRECAUTIONS FOR INSTALLATION

Installation Site

To ensure safety and utmost performance of the copier, the copier should NOT be used in a place:

- Where it will be subjected to extremely high or low temperature or humidity.
- Which is exposed to direct sunlight.
- Which is in the direct air stream of an air conditioner, heater or ventilator.
- Which puts the operator in the direct stream of exhaust from the copier.
- Which has poor ventilation.
- Where ammonia gas might be generated.
- Which does not have a stable, level floor.
- Where it will be subjected to sudden fluctuations in either temperature or humidity. If a cold room is quickly heated, condensation forms inside the copier, resulting in blank spots in the copy.
- Which is near any kind of heating device.
- Where it may be splashed with water.
- Which is dirty or where it will receive undue vibration.
- Which is near volatile flammables or curtains.

Power Source

Use an outlet with a capacity of 115V, 1.28KW or more, or 120V, 1.34KW or more, or 127V, 1.41KW or more, or 220-240V, 1.43KW or more.

- If any other electrical equipment is sourced from the same power outlet, make sure that the capacity of the outlet is not exceeded.
- Use a power source with little voltage fluctuation.
- Never connect by means of a multiple socket any other appliances or machines to the outlet being used for the copier.
- Make the following checks at frequent intervals:
  ✻ Is the power plug abnormally hot?
  ✻ Are there any cracks or scrapes in the cord?
  ✻ Has the power plug been inserted fully into the outlet?
  ✻ Does something, including the copier itself, ride on the power cord?
- Ensure that the copier does not ride on the power cord or communications cable of other electrical equipment, and that it does not become wedged into or underneath the mechanism.

Grounding

To prevent receiving electrical shocks in the case of electrical leakage, always ground the copier.

- Connect the grounding wire to:
  ✻ The ground terminal of the outlet.
  ✻ A grounding contact which complies with the local electrical standards.
- Never connect the grounding wire to a gas pipe, the grounding wire for a telephone, or a water pipe.

3 PRECAUTIONS FOR USE

To ensure that the copier is used in an optimum condition, observe the following precautions.

- Never place a heavy object on the copier or subject the copier to shocks.
- Insert the power plug all the way into the outlet.
- Do not attempt to remove any panel or cover which is secured while the copier is making copies.
- Do not turn OFF the Power Switch while the copier is making copies.
- Provide good ventilation when making a large number of copies continuously.
- Never use flammable sprays near the copier.
- If the copier becomes inordinately hot or produces abnormal noise, turn it OFF and unplug it.
- Do not turn ON the Power Switch at the same time when you plug the power cord into the outlet.
- When unplugging the power cord, do not pull on the cord; hold the plug and pull it out.
- Do not bring any magnetized object near the copier.
- Do not place a vase or vessel containing water on the copier.
- Be sure to turn OFF the Power Switch at the end of the workday or upon power failure.
- Use care not to drop paper clips, staples, or other small pieces of metal into the copier.

Operating Environment

The operating environmental requirements of the copier are as follows.

- Temperature: 10°C to 30°C with a fluctuation of 10°C per hour
- Humidity: 15% to 85% RH with a fluctuation of 10% RH per hour

Power Requirements

The power source voltage requirements are as follows.

- Voltage Fluctuation: AC115/120/127/220-240V
  ±10% (Copying performance assured)
  +6%, –10% (Only AC 127V)
  –15% (Paper feeding performance assured)
- Frequency Fluctuation: 50/60 Hz ±0.3%

4 HANDLING OF THE CONSUMABLES

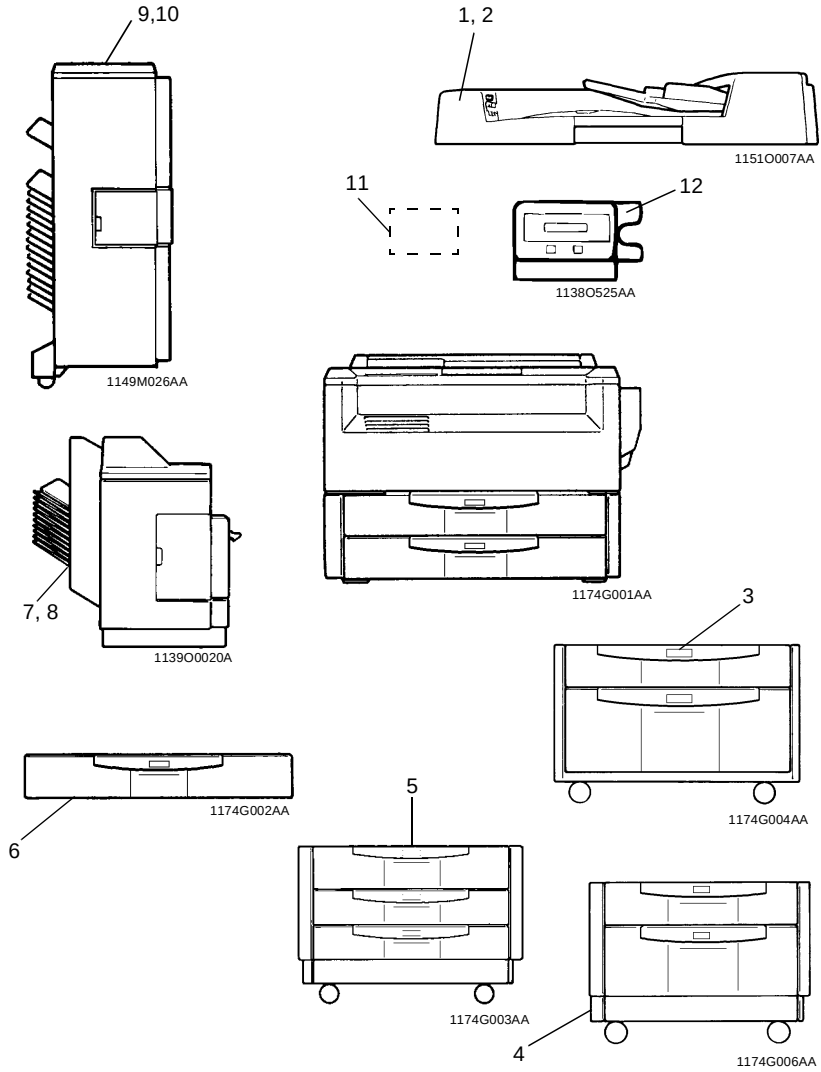
Before using any consumables, always read the label on the container carefully.

- Use the right toner. The applicable copier model name is indicated on the Toner Bottle.
- Paper can to be easily damaged by dampness. To prevent absorption of moisture, store paper, which has been removed from its wrapper but not loaded into the drawer, in a sealed plastic bag in a cool, dark place.
- Keep consumables out of the reach of children.
- Do not touch the PC Drum with bare hands.
- Store the paper, toner, and other consumables in a place free from direct sunlight and away from any heating apparatus.
- The same sized paper is of two kinds, short grain and long grain. Short grain paper should only be fed through the copier crosswise, long grain paper should only be fed lengthwise.
- If your hands become soiled with toner, wash them with soap and water immediately.
- Do not throw away any used consumables (PC Drum, starter, toner, etc.). They are to be collected.

NOTE

Do not burn, bury in the ground, or throw into the water any consumables (PC Drum, starter, toner, etc.).

5 SYSTEM OPTIONS



1. Automatic Document Feeder AF-5
2. Duplexing Document Feeder AFR-12
3. Paper Feed Cabinet PF-112
4. Duplex Cabinet PF-6D
5. Paper Feed Cabinet PF-206
6. Duplex Unit AD-11
7. 10-Bin Sorter S-106
8. 10-Bin Staple Sorter ST-104
9. 20-Bin Sorter S-207
10. 20-Bin Staple Sorter ST-210
11. Data Terminal
12. Data Controller D-102

EP3010

MECHANICAL/ ELECTRICAL

MINOLTA

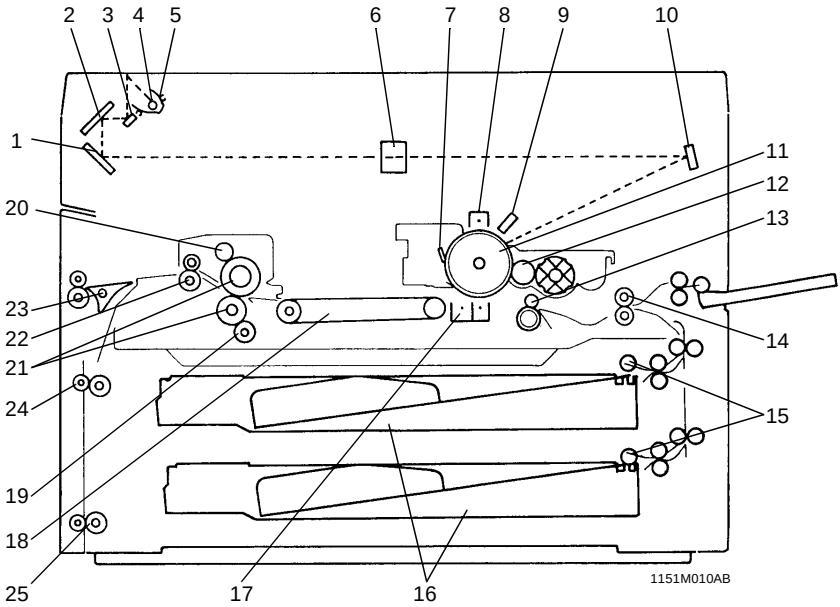
CONTENTS

1. CROSS-SECTIONAL VIEW M-1
2. COPY PROCESS M-2
3. DRIVE SYSTEM M-4
4. SEQUENTIAL EXPLANATION M-5
5. WATCHDOG (CPU OVERRUN MONITOR) FUNCTION M-9
   5-1. Configuration M-9
   5-2. Watchdog Function Post-Processing M-10
6. MALFUNCTION BYPASS FUNCTION M-11
   6-1. Candidates for Isolated Malfunctions M-11
7. IMAGE STABILIZATION SYSTEM M-12
   7-1. AIDC Sensor M-13
   7-2. Image Stabilization Control Processing Timing M-14
   7-3. Details of Image Stabilization Controls M-15
8. IMAGING UNIT M-17
   8-1. Imaging Unit Drive M-18
   8-2. Imaging Unit Toner Recycling M-18
9. PC DRUM M-19
10. DRUM CHARGING M-20
11. IMAGE ERASE LAMP M-21
12. OPTICAL SECTION M-25
   12-1. Exposure Lamp M-26
   12-2. AE Sensor M-27
   12-3. Lamp Reflectors M-28
   12-4. Aperture Plates M-28
   12-5. Scanner and 2nd/3rd Mirror Carriage Movement M-29
   12-6. 4th Mirror Movement M-31
   12-7. Lens Movement M-32
13. ORIGINAL SIZE DETECTING SENSORS M-33
   13-1. Identification of Original Size Detecting Sensors M-33
   13-2. Original Size Detecting Operation M-33
   13-3. Sensor Locations M-34
   13-4. Size Detection M-35
   13-5. Original Size Detection Timing M-36
   13-6. Original Cover Angle Detection M-37
14. DEVELOPMENT M-38
   14-1. ATDC Sensor M-39
   14-2. Magnet Roller M-41
   14-3. Developing Bias M-42
   14-4. Doctor Blade M-43
   14-5. Magnet Roller Lower Collector M-43
15. TONER HOPPER M-44
   15-1. Toner Hopper Locking/Unlocking M-44
   15-2. Toner Replenishing M-44
   15-3. Shutter M-45
   15-4. Toner Hopper Home Position Detection M-45
   15-5. Toner Bottle Vibration M-46

15-6. Toner Replenishing Control M-46
16. PAPER TAKE-UP/FEED SECTION M-47
16-1. Drawer-in-Position Detection M-48
16-2. Drawer Paper Lifting/Lowering Mechanism/Control M-49
16-3. Paper Level Detection M-51
16-4. Paper Empty Detection M-52
16-5. Universal Tray (2nd Drawer) Paper Size Detection M-53
16-6. Paper Take-Up Mechanism M-56
(1) Paper Take-Up Mechanism M-56
(2) Paper Separating Mechanism M-57
(3) Paper Pressure Releasing Mechanism M-58
(4) Paper Take-Up Roll Retraction Mechanism M-58
16-7. Drawer Paper Take-Up Control M-59
(1) Paper Take-Up Motor Control M-59
(2) Paper Take-Up Retry Control M-60
(3) Paper Take-Up Interval Control M-60
(4) Double Feed Paper Take-Up Control M-60
16-8. Vertical Paper Transport M-61
17. MULTI BYPASS TABLE M-62
17-1. Paper Take-Up Mechanism M-63
17-2. Paper Take-Up Retry Control M-64
17-3. Paper Separating Mechanism M-65
17-4. Paper Empty Detection M-65
18. SYNCHRONIZING ROLLERS M-66
18-1. Upper Synchronizing Roller Positioning M-67
18-2. Paper Dust Remover M-67
18-3. Synchronizing Roller Control M-68
19. IMAGE TRANSFER AND PAPER SEPARATION M-69
20. MAIN ERASE LAMP M-71
21. PAPER SEPARATOR FINGERS M-72
22. CLEANING UNIT M-74
22-1. Cleaning Unit M-74
22-2. Cleaning Bias M-75
23. PAPER TRANSPORT M-76
24. FUSING UNIT M-77
24-1. Fusing Temperature Control M-78
24-2. Fusing Rollers Pressure Mechanism M-79
24-3. Brush Roller/Cleaning Roller M-80
25. EXIT UNIT M-81
25-1. Upper/Lower Separator Fingers M-81
26. EXIT/DUPLEX SWITCHING UNIT M-82
27. DEHUMIDIFYING SWITCH (OPTION) M-83
28. COOLING FAN M-84
29. OPTICAL SECTION COOLING FAN M-85
30. MEMORY BACKUP M-86

1173SBM0100A

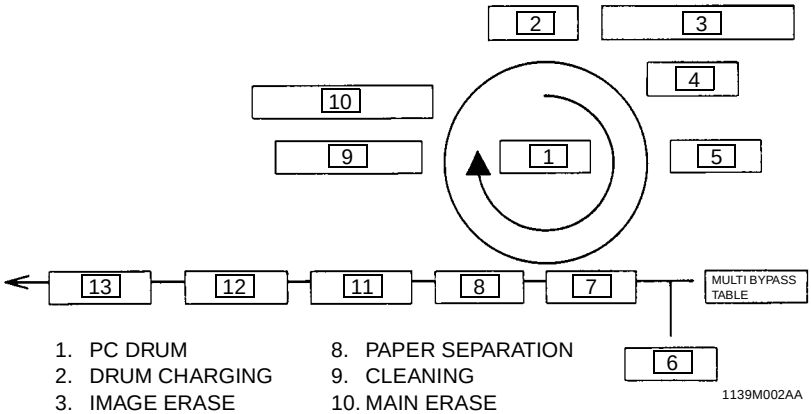
1 CROSS-SECTIONAL VIEW



1. 3rd Mirror
2. 2nd Mirror
3. 1st Mirror
4. Exposure Lamp
5. Lamp Reflector
6. Lens
7. Cleaning Blade
8. PC Drum Charge Corona
9. Image Erase Lamp
10. 4th Mirror
11. PC Drum
12. Sleeve/Magnet Roller
13. Synchronizing Roller
14. Transport Roller
15. 1st/2nd Drawer Paper Take-Up Roll
16. 1st/2nd Drawer
17. Image Transfer/Paper Separator Coronas
18. Suction Unit
19. Cleaning Roller
20. Brush Roller
21. Upper/Lower Fusing Roller
22. Paper Exit Roller
23. Exit/Duplex Switching Guide
24. Duplex Unit Vertical Transport Roller 1 (for optional Duplex Unit)
25. Duplex Unit Vertical Transport Roller 2 (for optional Duplex Unit)

1173SBM0200A

2 COPY PROCESS



1. PC DRUM
2. DRUM CHARGING
3. IMAGE ERASE
4. EXPOSURE
5. DEVELOPING
6. PAPER FEEDING
7. IMAGE TRANSFER
8. PAPER SEPARATION
9. CLEANING
10. MAIN ERASE
11. TRANSPORT
12. FUSING
13. PAPER EXIT

1. PC Drum The PC Drum is an aluminum cylinder coated with a photosensitive semiconductor. It is used as the medium on which a visible developed image of the original is formed. (For more details, see “9. PC DRUM”.)
2. Drum Charging The PC Drum Charge Corona Unit is equipped with a Comb Electrode and a Scorotron Grid to deposit a uniform negative charge across the entire surface of the PC Drum. (For more details, see “10. DRUM CHARGING”.)
3. Image Erase Any areas of charge which are not to be developed are neutralized by lighting up LEDs. (For more details, see “11. IMAGE ERASE LAMP”.)
4. Exposure Light from the Exposure Lamp reflected off the original is guided to the surface of the PC Drum and reduces the level of the negative charges, thereby forming an electrostatic latent image. (For more details, see “12. OPTICAL SECTION”.)
5. Developing Toner positively charged in the Developer Mixing Chamber is attracted onto the electro-static latent image changing it to a visible, developed image. A DC negative bias voltage is applied to the Sleeve/Magnet Roller to prevent toner from being attracted onto those areas of the PC Drum which correspond to the background areas of the original. (For more details, see “14. DEVELOPMENT”.)

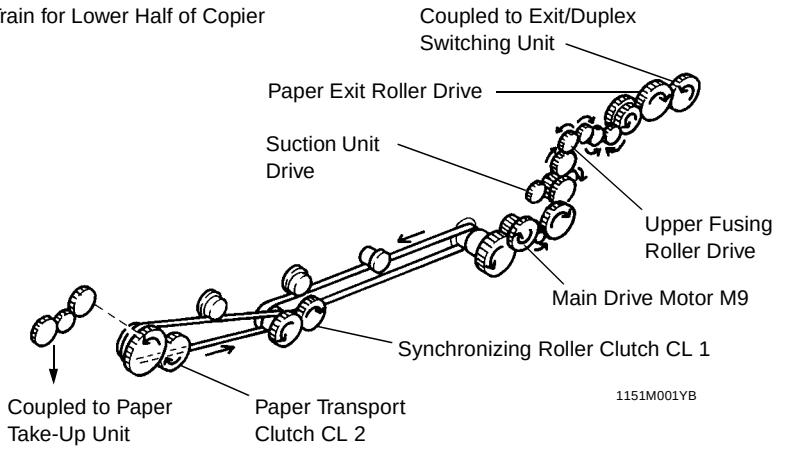
6. Paper Feeding Paper is fed either automatically from the 1st or 2nd Drawer, or manually via the Multi Bypass Table or Manual Bypass Table. Paper separation is accomplished by the torque limiter fitted to the Paper Separator Roll. (For more details, see “16. PAPER TAKE-UP/FEED SECTION”.)
7. Image Transfer The single-wire Image Transfer Corona Unit applies a DC negative corona emission to the underside of the paper, thereby attracting toner onto the surface of the paper. (For more details, see “19. IMAGE TRANSFER AND PAPER SEPARATION”.)
8. Paper Separation The single-wire Paper Separator Corona Unit applies an AC corona emission to the underside of the paper to neutralize the paper. In addition, mechanical paper separation is provided by the two PC Drum Paper Separator Fingers fitted to the Imaging Unit. (For more details, see “19. IMAGE TRANSFER AND PAPER SEPARATION”.)
9. Cleaning Residual toner on the surface of the PC Drum is scraped off by the Cleaning Blade. (For more details, see “22. CLEANING UNIT”.)
10. Main Erase Light from the Main Erase Lamp neutralizes any surface potential remaining on the surface of the PC Drum after cleaning. (For more details, see “20. MAIN ERASE LAMP”.)
11. Transport The paper is fed to the Fusing Unit by the Suction Belts. (For more details, see “23. PAPER TRANSPORT”.)
12. Fusing The developed image is permanently fused to the paper by a combination of heat and pressure applied by the Upper and Lower Fusing Rollers. (For more details, see “24. FUSING UNIT”.)
13. Paper Exit After the fusing process, the paper is fed out by the Paper Exit Roller onto the Copy Tray. (For more details, see “25. EXIT UNIT”.)

1173SBM0300A

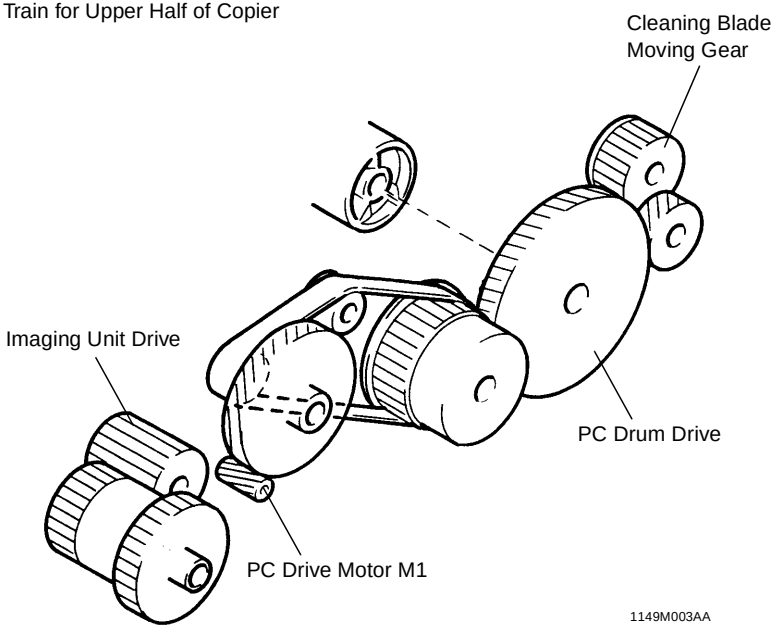
3 DRIVE SYSTEM

This copier is equipped with two main drive motors, the PC Drive Motor that drives the upper half of the copier (Imaging Unit) and the Main Drive Motor which drives the lower half of the copier (paper take-up/feeding, transport mechanism and Fusing Unit). Each has its own drive transmitting gears and timing belts as illustrated below.

Drive Train for Lower Half of Copier


Coupled to Exit/Duplex Switching Unit
Paper Exit Roller Drive
Suction Unit Drive
Upper Fusing Roller Drive
Main Drive Motor M9
Synchronizing Roller Clutch CL 1
1151M001YB
Coupled to Paper Take-Up Unit
Paper Transport Clutch CL 2

Drive Train for Upper Half of Copier



4 SEQUENTIAL EXPLANATION

✻ Numbers given in rectangles ☐ in the following flowchart are timer values in seconds.

A The power cord is plugged into the outlet.

Power cord is plugged in.

- ON → DC24V for Drum heating (Power Supply Unit)
- ON → Drum Dehumidifying Heater
- ON → Paper Dehumidifying Heater

(Drum Dehumidifying Heater, Paper Dehumidifying Heater: Only when Dehumidifying Switch is ON)

B Power Switch is turned ON.

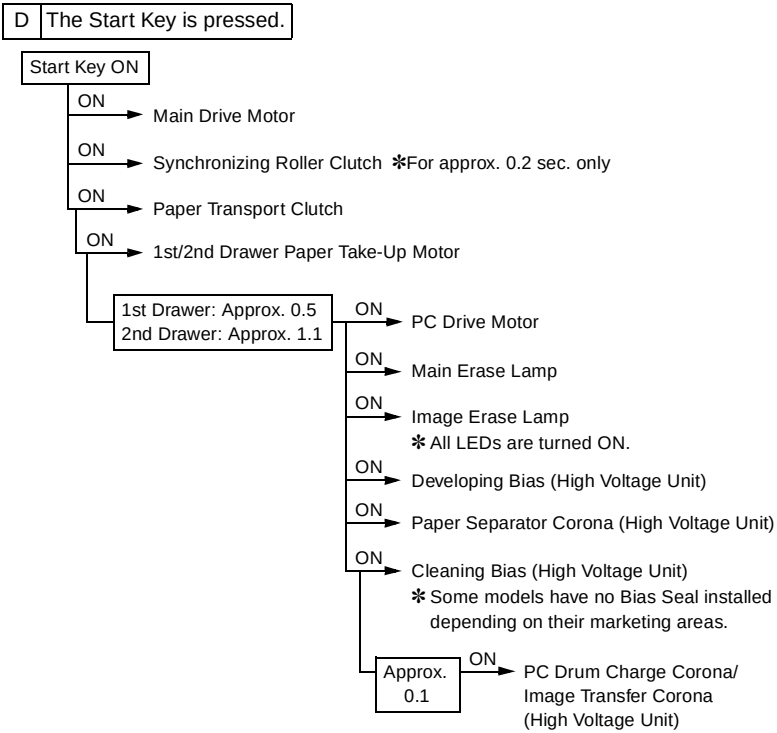
Power Switch ON

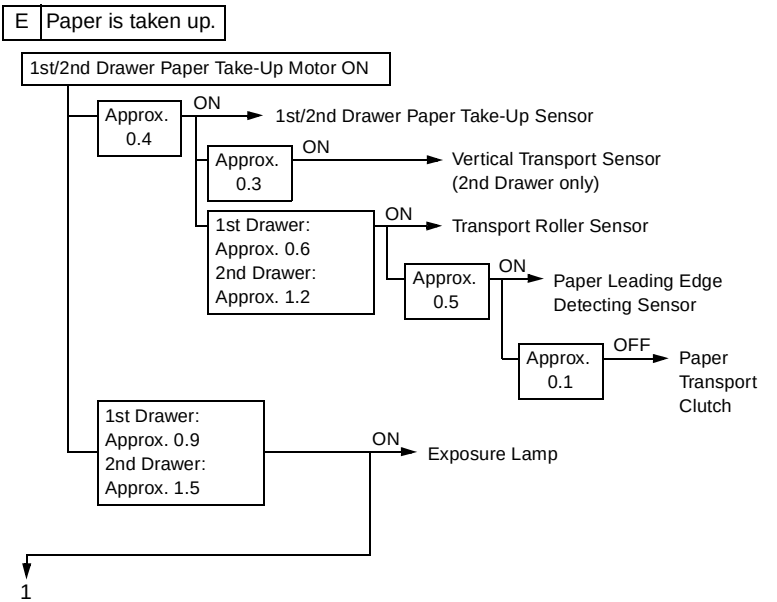
- ON → DC5V (Power Supply Unit)
- ON → DC24V (Power Supply Unit)
- ON → Control panel
- ON → The Cooling Fan turns at full speed.
  - Approx. 2~12 → ON → The Cooling Fan turns at half speed.
  - Approx. 0.5 → ON → Fusing Heater Lamp
- ON → Scanner Reference Position Sensor
  ✻ If the Scanner is not at the home position, Scanner Motor is energized to move the Scanner to the home position.
  - ON → Lens Reference Position Sensor
    ✻ If the Lens is not at the home position, Lens Motor is energized to move the Lens to the home position.
    - ON → Mirror Reference Position Sensor
      ✻ If the 4th Mirror is not at the home position, Mirror Motor is energized to move the Mirror to the home position.

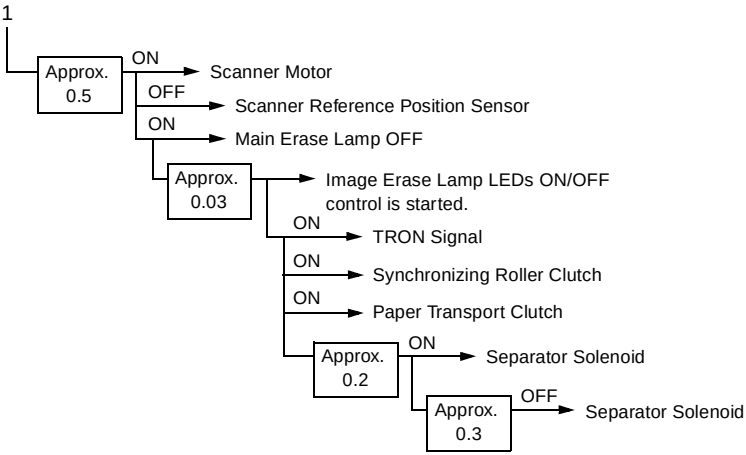
C The Fusing Unit temperature reaches 210°C.

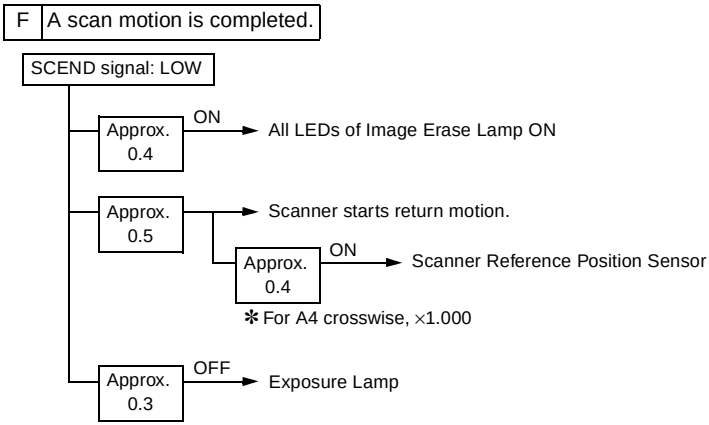
Fusing Thermistor 1 detects 210°C.

- ON/OFF → Fusing Heater Lamp
  ✻ The Fusing Unit temperature control is started.

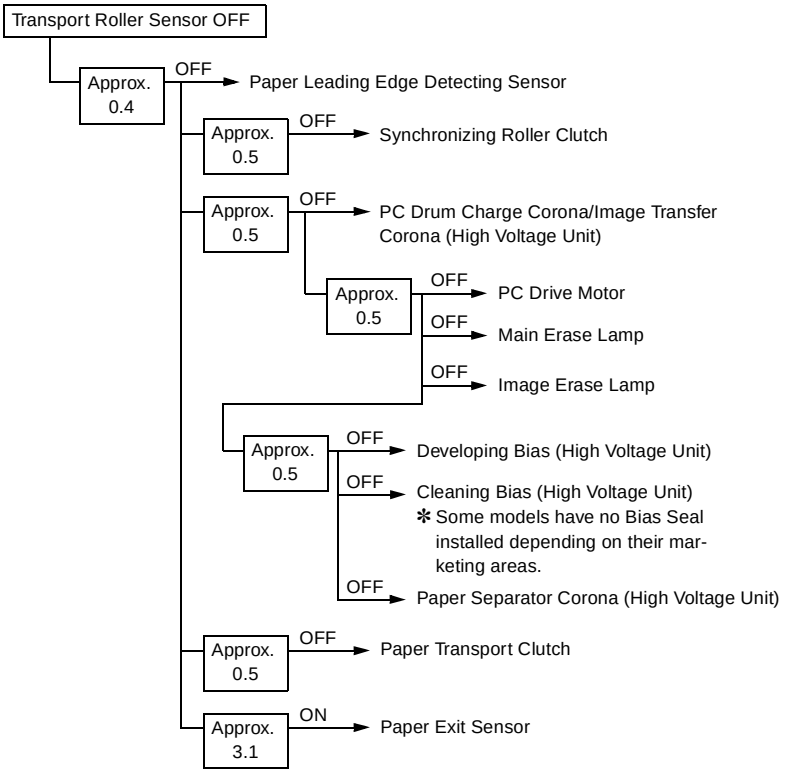

D
The Start Key is pressed.
Start Key ON
ON
Main Drive Motor
ON
Synchronizing Roller Clutch ✻For approx. 0.2 sec. only
ON
Paper Transport Clutch
ON
1st/2nd Drawer Paper Take-Up Motor
1st Drawer: Approx. 0.5
2nd Drawer: Approx. 1.1
ON
PC Drive Motor
ON
Main Erase Lamp
ON
Image Erase Lamp
✻ All LEDs are turned ON.
ON
Developing Bias (High Voltage Unit)
ON
Paper Separator Corona (High Voltage Unit)
ON
Cleaning Bias (High Voltage Unit)
✻ Some models have no Bias Seal installed depending on their marketing areas.
Approx. 0.1
ON
PC Drum Charge Corona/
Image Transfer Corona
(High Voltage Unit)


E
Paper is taken up.
1st/2nd Drawer Paper Take-Up Motor ON
Approx. 0.4
ON
1st/2nd Drawer Paper Take-Up Sensor
Approx. 0.3
ON
Vertical Transport Sensor
(2nd Drawer only)
1st Drawer:
Approx. 0.6
2nd Drawer:
Approx. 1.2
ON
Transport Roller Sensor
Approx. 0.5
ON
Paper Leading Edge
Detecting Sensor
Approx. 0.1
OFF
Paper
Transport
Clutch
1st Drawer:
Approx. 0.9
2nd Drawer:
Approx. 1.5
ON
Exposure Lamp
1

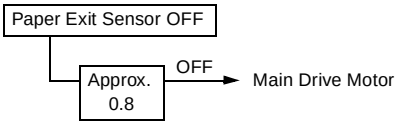

1
Approx. 0.5
ON
Scanner Motor
OFF
Scanner Reference Position Sensor
ON
Main Erase Lamp OFF
Approx. 0.03
Image Erase Lamp LEDs ON/OFF control is started.
ON
TRON Signal
ON
Synchronizing Roller Clutch
ON
Paper Transport Clutch
Approx. 0.2
ON
Separator Solenoid
Approx. 0.3
OFF
Separator Solenoid


F
A scan motion is completed.
SCEND signal: LOW
Approx. 0.4
ON
All LEDs of Image Erase Lamp ON
Approx. 0.5
Scanner starts return motion.
Approx. 0.4
ON
Scanner Reference Position Sensor
✻ For A4 crosswise, ×1.000
Approx. 0.3
OFF
Exposure Lamp

G The last paper moves past Transport Roller Sensor.



H The paper moves past Paper Exit Sensor.



1173SBM0500A

5 WATCHDOG (CPU OVERRUN MONITOR) FUNCTION

The watchdog function monitors whether any of the CPUs mounted in the copier overrun. If this function detects that a CPU overruns, the copier automatically resets the CPU, thereby restarting the logic circuit and mechanism.

Even if a copier CPU operates erratically due to electrical noise, therefore, the copier is able to recover from the faulty condition so that the number of visits made by the Technical Representative for CPU overrun can be minimized.

1173SBM0501A

5-1. Configuration

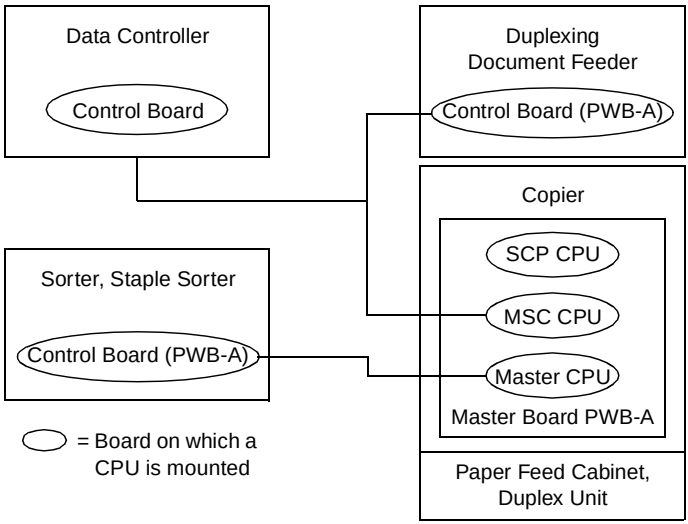
The copier has one printed-circuit board on which a CPU is mounted. That is the Master Board which has the following three CPUs:

Master CPU: Controls the copier, Paper Feed Cabinet and Duplex Unit.
SCP CPU: Controls the optical system.
MSC CPU: Controls the control panel and system.

In addition to these, each of the control boards for the Data Controller, Duplexing Document Feeder, and Sorter/Staple Sorter is equipped with a CPU.

The watchdog functions are summarized as follows:

- ✻ Each of the copier CPUs monitors whether or not it overruns.
- ✻ The MSC CPU monitors the communications conditions of the CPUs in the Duplexing Document Feeder and Data Controller.
- ✻ The Master CPU monitors the communications conditions of the CPUs in the Sorter and Staple Sorter.
- ✻ The control boards for the Paper Feed Cabinet and Duplex Unit do not have a CPU in them. Instead, the Master CPU in the copier controls their operations.



5-2. Watchdog Function Post-Processing

The following processing is performed if a faulty condition is detected in the CPU.

When the copier CPU is found faulty:

- All CPUs including those of the options are reset and the system is restarted. If the CPU is found faulty during a copy cycle, the system attempts to feed all sheets of paper out of the copier before resetting. (If paper is left inside the copier, the copier detects it as a misfeed as it is restarted.)

When an option CPU is found faulty:

- The option relays are turned OFF and ON and all options are then restarted. If the CPU is found faulty during a copy cycle, the copier stops the paper take-up sequence and feeds all sheets of paper out of the copier before resetting.

The Watchdog Counter available from the Tech. Rep. mode allows the Technical Representative to check if any faulty condition has occurred in the CPU. For details, see SWITCHES ON PWBs.

1173SBM0600A

6 MALFUNCTION BYPASS FUNCTION

- When a malfunction occurs in the copier, the malfunction bypass function permits the copier to continue operating if that malfunction is one of the predefined candidates for an isolated malfunction and if it will not affect the current copying operation. But, if an isolated malfunction occurs anytime during the actual copy cycle, the copier considers it a normal malfunction.
- If a copying function involving an isolated malfunction is selected, the message “Selected mode can’t be used.” appears on the Touch Panel and the copier rejects that function.
- When an isolated malfunction occurs, a tiny wrench “ ” indicator appears in the lower left corner of the Basic Screen. Access the “Machine Status” display by touching the icon or via the Tech. Rep. mode to ascertain the trouble code. Then refer to the Troubleshooting Manual for details.
- Trouble codes for up to five isolated malfunctions are shown on the “Machine Status” display. When a sixth isolated malfunction occurs, the copier considers it a normal malfunction, prompting a Tech. Rep. call. (The sixth malfunction is shown on the Touch Panel.) But, if all of the paper feed ports (except the manual feed port) show an isolated malfunction, the copier considers them a normal malfunction even though the isolated malfunction count may be less than five. The display also tells the condition when the image stabilization controls are not properly working.

1173SBM0601A

6-1. Candidates for Isolated Malfunctions

- For the details of the malfunction codes, see TROUBLESHOOTING for the copier and the SERVICE MANUAL for the options.

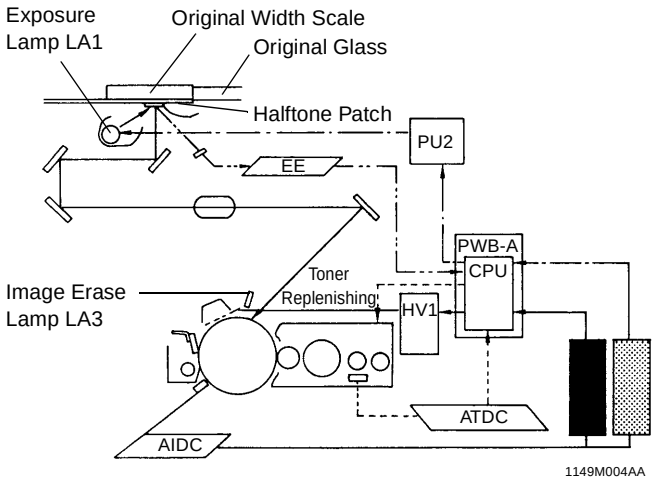
Copier/ Options	Item	Malfunction Code
Copier	Optical system cooling	C004b
	1st Drawer	C0920/C0924
	2nd Drawer	C0910/C0914
	Auto Paper, Auto Size (original size detection)	C0F02/C0FE1~C0FFF
	AIDC (faulty image stabilization)	C0F20/C0F22/C0F23
	Communication failure with options	C0350~52
Options	3rd Drawer	C0900/C0904
	4th Drawer	C0950/C0954
	Paper Feed Cabinet	C0990~94/C0996/C0F79 C0998~9C/C099E/C099F
	Duplex Unit	C0d00/C0d20/C0d50/C0d51
	Sorting	C0b10~13/C0b30 C0b60~64
	Stapling	C0b51
	Punching	C0b70/C0b71

7 IMAGE STABILIZATION SYSTEM

The following image stabilization controls are provided to ensure stabilized copy image.

Item	Quality	Purpose	Control
Initial Setting	Image density, gradation	To make initial settings of grid voltage (Vg), optimum Exposure Lamp voltage, and AE Sensor gain.	Sets the initial values for grid voltage correction, optimum Exposure Lamp voltage correction, and AE Sensor gain adjustment.
Regular correction	Image density	To compensate for any drop in image density due to a deteriorating PC Drum.	Corrects the grid voltage through AIDC Sensor control.
	Gradation	To compensate for any drop in the intensity of LA1 light due to a contaminated optical system.	Corrects the optimum Exposure Lamp voltage through AIDC control.
	Foggy background	To keep a given toner-to-carrier ratio of the developer in the Developer Mixing Chamber.	Provides toner replenishing control by means of the ATDC Sensor. (For details, see 14. DEVELOPMENT.)
Correction for Faulty AIDC Sensor	Image density, gradation	To compensate for image density and gradation aggravated by a faulty AIDC Sensor.	Corrects the grid voltage and optimum Exposure Lamp voltage according to the time through which the PC Drum has turned and the copier has run.

The following is the block diagram of the image stabilization system.



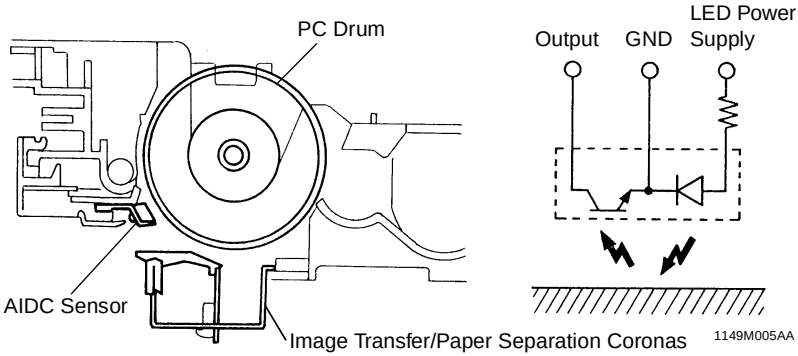
1173SBM0701A

7-1. AIDC Sensor

To provide image stabilization control, this copier has the AIDC Sensor fitted to the Cleaning Unit of the Imaging Unit. The sensor is used to detect the toner density and background level on the PC Drum.

Operation

1. The AIDC Sensor Board LED projects approx. 950-nm infrared light onto the surface of the PC Drum.
2. The AIDC Sensor Board phototransistor detects the amount of light reflected back.
3. The phototransistor outputs a voltage corresponding to the intensity of the light reflected back.



Toner Density on PC Drum	Light reflected	Output Voltage
High	Small	High
Low	Large	Low

7-2. Image Stabilization Control Processing Timing

- The image stabilization controls use the AIDC Sensor and AE Sensor as the basis for performing the following four major types of processing.
- The grid voltage, T/C, and optimum Exposure Lamp corrections are not, however, made if T/C falls outside the range of 4% to 8% at adjustment.

1. AIDC Sensor adjustment
2. Grid voltage and T/C correction
3. Optimum Exposure Lamp voltage correction
4. AE Sensor gain adjustment

- Processing Timing

Item	Timing	Processing (❍: Performed; –: Not performed)			
	Processing Order (→)	1	2	3	4
Initial setting	At the initial setup, or when the FF or F5 test operation is run after the PC Drum has been replaced.	❍	❍ (✻1)	❍	❍
Regular correction	Upon completion of the copy cycle for every 100 copies made in terms of the number of intermittent copies, as it is equivalent to the time over which the PC Drum turns.	❍	❍	❍	❍
Correction for a faulty AIDC Sensor	Upon completion of the copy cycle for every 45K copies made in terms of the number of intermittent copies, as it is equivalent to the time over which the PC Drum has turned after a faulty AIDC Sensor was detected.	–	❍ (✻2)	❍ (✻2)	❍

✻ 1: T/C is not corrected when an F5 test operation is run.
✻ 2: The grid voltage is increased by 30V and the optimum Exposure Lamp voltage by 1V. No T/C correction is made even when the grid voltage reaches its upper limit.

7-3. Details of Image Stabilization Controls

1. AIDC Sensor adjustment
2. Grid voltage and T/C correction
3. Optimum Exposure Lamp voltage correction
4. AE Sensor gain adjustment

- The following are the details of each image stabilization control.

1-1. AIDC Sensor coarse adjustment

This adjustment represents a coarse adjustment of the AIDC Sensor when the ordinary control of only the LED current cannot cover part-to-part variations in the AIDC Sensor (installation, circuit, deterioration, etc.). The surface of the PC Drum whose charges have been neutralized is exposed to light from the LED. The output current from the AIDC Sensor goes through the load resistance selected by a 4-bit analog switch and the 4-bit analog switch selects the load resistance so that the resultant voltage becomes 1V or less.

1-2. AIDC Sensor fine adjustment

If the AIDC Sensor is dirty with toner, it results in an error being produced in the sensor output voltage value, providing a false reference value. The surface of the PC Drum which has been erased is exposed to light from the LED. The LED current value is varied through pulse width control so that the output voltage from the AIDC Sensor becomes 1V.

Controlled Part	Output Signal	ON	OFF	WIRING DIAGRAM
AIDC Sensor	PJ8A-7	Pulse output		4-F

2. Grid voltage and T/C correction

The Image Erase Lamp produces a solid-black pattern on the surface of the PC Drum and the AIDC Sensor reads the pattern. The grid voltage is then varied so that the output from the AIDC Sensor remains a given level or higher, which ensures that the toner-to-carrier ratio on the surface of the PC Drum becomes constant.

If an even greater solid-black density is required when the upper control limit of the grid voltage has already been reached, the target control value of T/C is raised in 0.5% steps up to 7%, thus terminating the adjustment sequence.

	Control Value	1 Step	Initial Value
Grid Voltage	550 to 790V	30V	550V

<Relation with Image Density>
The “Image Exposure” function of “Tech. Rep. Choice” available from the Tech. Rep. mode enables fine-adjustments of the grid voltage (solid-black image density) to be made. It specifies how many volts the optimum grid voltage determined by the image stabilization control is to be increased or decreased. This fine-adjustment value remains the same even when the optimum grid voltage is later varied by the image stabilization control.

Controlled Part	Control Signal	ON	OFF	WIRING DIAGRAM
Grid voltage output from High Voltage Unit HV1	PJ27A-1	Pulse Output		1-F

3. Optimum Exposure Lamp voltage correction
The Exposure Lamp is turned ON to illuminate the halftone patch on the back of the Original Width Scale, thereby producing a halftone pattern on the surface of the PC Drum. The Exposure Lamp voltage is then varied so that the output from the AIDC Sensor falls within the target range, thereby ensuring an optimum exposure level.

	Control Value	1 Step	Initial Value
Exposure Lamp voltage (100V Areas)	47 to 75V	1V	58V
Exposure Lamp voltage (200V Areas)	94 to 140V	2V	116V

<Relation with “Manual Exposure Level” of F5>
The “manual exposure level” of Function F5 available from the Tech. Rep. mode enables fine-adjustments of the Exposure Lamp voltage (halftone image density) to be made. It specifies how many volts the optimum Exposure Lamp voltage determined by the image stabilization control is to be increased or decreased. This fine-adjustment value remains the same even when the optimum Exposure Lamp voltage is later varied by the image stabilization control.

Controlled Part	Control Signal	ON	OFF	WIRING DIAGRAM
Exposure Lamp Regulator (PU2) REM	PJ36A-3	Pulse output		22-B

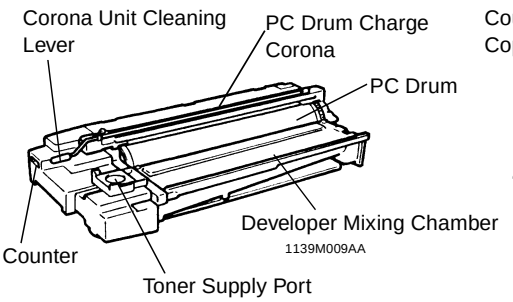
4. AE Sensor gain adjustment
The Exposure Lamp is turned ON to illuminate the blank sheet of paper placed on the Original Glass (when an F5 or FF operation is run) or the halftone patch on the back of the Original Width Scale (when AE Sensor gain is adjusted in a sequence other than F5 or FF). The reflected light is then read by the AE Sensor and a gain adjustment of the AE Sensor is made to maintain an optimum Auto exposure level.

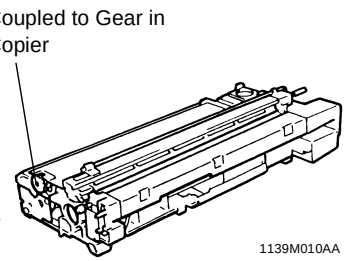
Controlled Part	Control Signal	ON	OFF	WIRING DIAGRAM
AE Sensor Board PWB-H	PJ5A-2	Pulse Output		8-F

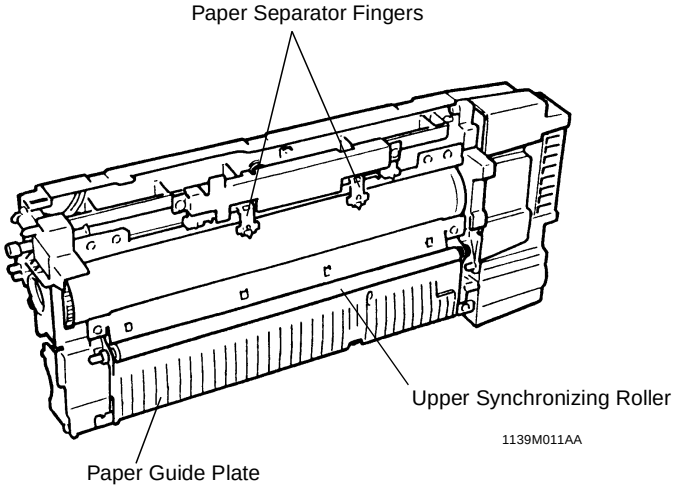
1173SBM0800A

8 IMAGING UNIT

This copier is equipped with an Imaging Unit, or IU, which integrates a PC Drum, PC Drum Charge Corona, Developing Unit, Cleaning Unit, and Toner Recycling mechanism into one assembly. The Unit also includes the Upper Synchronizing Roller which facilitates clearing of a paper misfeed.







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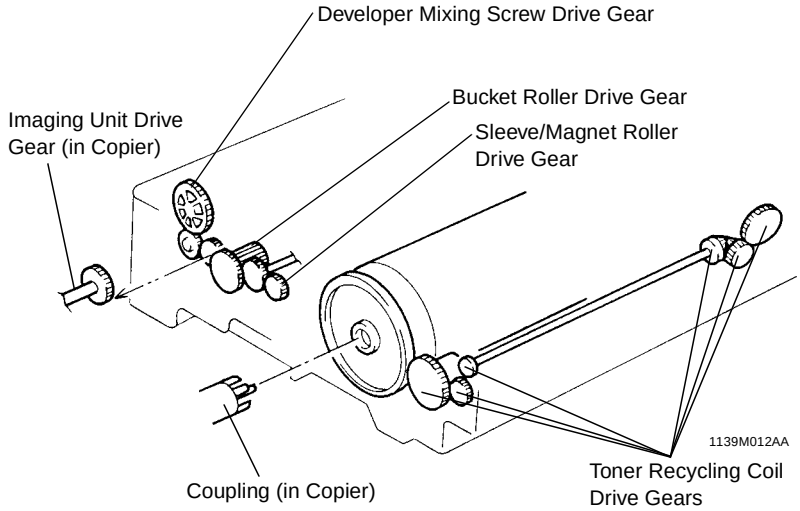
8-1. Imaging Unit Drive

Drive for the Imaging Unit is transmitted by one of the gears on the Unit.
This particular gear is in mesh with the Imaging Unit Drive Gear in the copier.

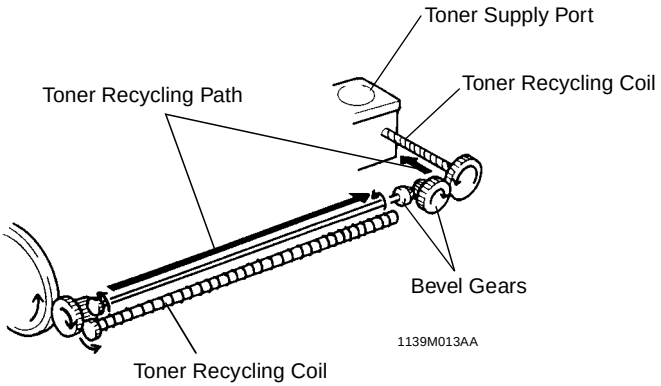

Developer Mixing Screw Drive Gear
Bucket Roller Drive Gear
Imaging Unit Drive Gear (in Copier)
Sleeve/Magnet Roller Drive Gear
1139M012AA
Coupling (in Copier)
Toner Recycling Coil Drive Gears

1173SBM0802A

8-2. Imaging Unit Toner Recycling

The copier is provided with a toner recycling mechanism. The toner, which has been scraped off the surface of the PC Drum by the Cleaning Blade and collected in the Cleaning Unit, is conveyed by the two Toner Recycling Coils to the Toner Supply Port and, from there, it is returned back to the Developer Mixing Chamber of the Developing Unit.

One of the gears of the Toner Recycling mechanism receives drive through a gear at the rear end of the PC Drum.

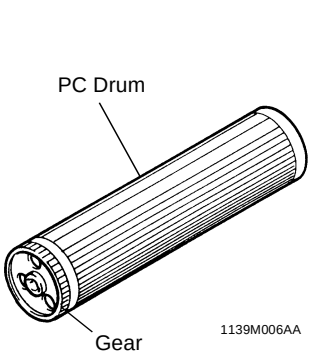


9 PC DRUM

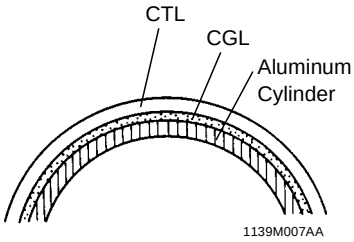
The photoconductive drum used in this copier is the organic photoconductor (OPC) type. The drum is made up of two distinct, semiconductive materials on an aluminum alloy base. The outer of the two layers is called the Charge Transport Layer (CTL), while the inner layer is called the Charge Generating Layer (CGL).

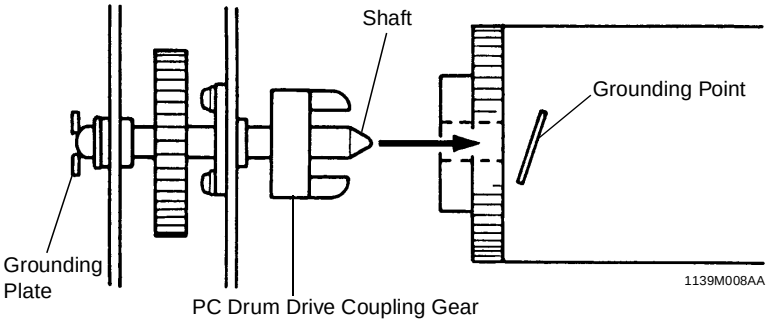
The PC Drum has its grounding point inside at the rear end. When the Imaging Unit is installed in the copier, the shaft on which the PC Drum Drive Coupling Gear is mounted contacts this grounding point.

Handling Precautions
This photoconductor exhibits greatest light fatigue after being exposed to light over an extended period of time. It must therefore be protected from light by a clean, soft cloth whenever the Imaging Unit has been removed from the copier. Further, use utmost care when handling the PC Drum to prevent it from being contaminated.



PC Drum Cross-Sectional View



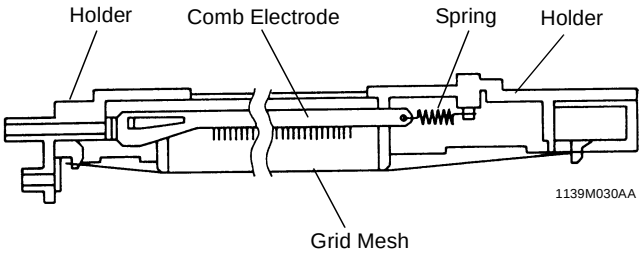


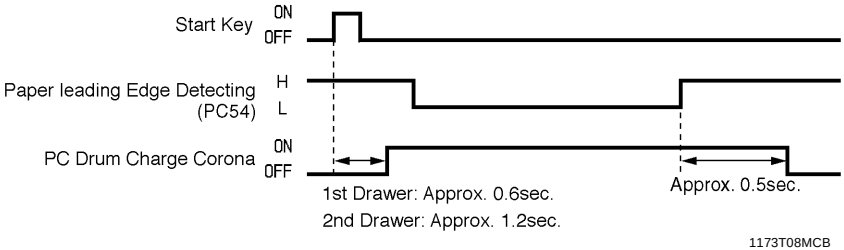
10 DRUM CHARGING

The PC Drum Charge Corona has a Scorotron grid to deposit a negative DC charge evenly across the surface of the PC Drum. The grid voltage (VG) applied to the grid mesh is selected between –550V (initial value, variable according to image stabilization controls) in the normal mode and the value in the normal mode +90V in the Photo mode by the Constant-Voltage Circuit in the High Voltage Unit.

The Corona Unit has a Comb Electrode which minimizes the amount of ozone produced. The conventional wire type corona unit produces a large amount of ozone due to corona discharge in radial directions. The comb electrode type, on the other hand, discharges only toward the Grid Mesh, meaning a reduced amount of ozone is produced.

The Comb Electrode can be cleaned by the user who pulls out to the front the shaft on which a Cleaning Roller is mounted.





	Control Signal	ON	OFF	WIRING DIAGRAM
PC Drum Charge Corona	PWB-A PJ27A-2	L	H	1-F

	Control Signal	Normal Mode	Photo Mode	WIRING DIAGRAM
Grid Voltage (VG)	PWB-A PJ27A-1	Pulse output		1-F

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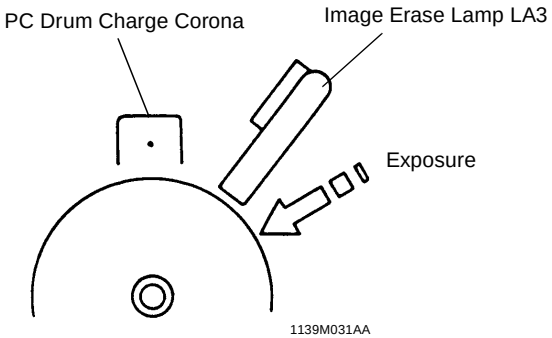
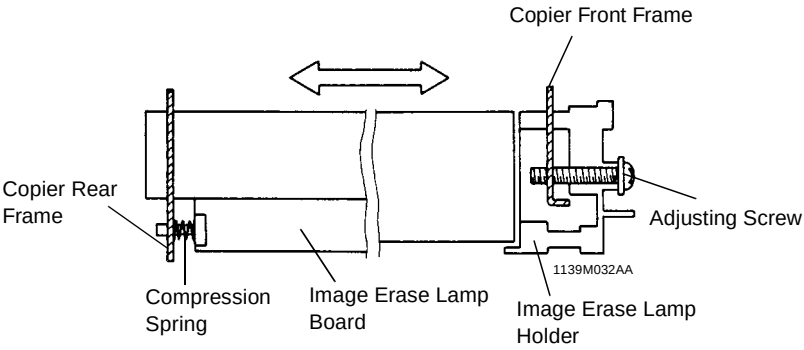
11 IMAGE ERASE LAMP

To prevent a black band from occurring across both the leading and trailing edges, and along the front and rear edges, of the electrostatic latent image, 38 LEDs of the Image Erase Lamp are turned ON before development takes place, thereby reducing to a minimum the unnecessary potential on the surface of the PC Drum.

Because of the light path involved, this copier has this edge erasing cycle between drum charging and exposure.



The position of the Image Erase Lamp can be adjusted using the adjusting screw at the front of the copier.



The 38 LEDs are grouped as follows and turned ON and OFF according to the paper size and zoom ratio.

LED Group No.	LED No.	LED Group No.	LED No.
01	LED 1	17	LED 23
02	LED 2	18	LED 24
03	LED 3 to 5	19	LED 25
04	LED 6 to 8	20	LED 26
05	LED 9 to 11	21	LED 27
06	LED 12	22	LED 28
07	LED 13	23	LED 29
08	LED 14	24	LED 30
09	LED 15	25	LED 31
10	LED 16	26	LED 32
11	LED 17	27	LED 33
12	LED 18	28	LED 34
13	LED 19	29	LED 35
14	LED 20	30	LED 36
15	LED 21	31	LED 37
16	LED 22	32	LED 38

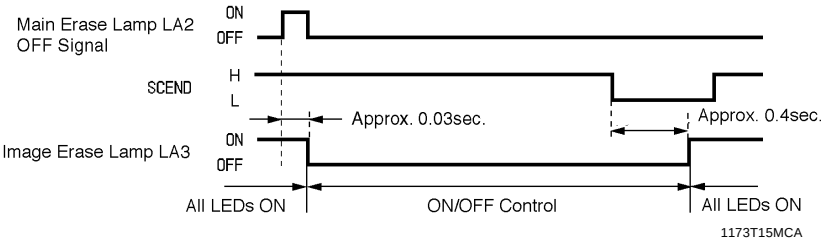
✻ The smaller the number, the nearer the LED is to the front side of the copier.

- Image Erase Lamp LEDs ON/OFF Pattern (Control is provided to turn ON more LEDs when the ON/OFF pattern varies between a zoom ratio and paper width.)

Zoom Ratio	Paper Width (mm)	LED Group No.																														
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
–	to 94	❍	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
–	95 to 106	❍	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
–	107 to 117	❍	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
–	118 to 128	❍	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
–	129 to 137	❍	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.500 to 0.519	138 to 146	❍	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.520 to 0.545	147 to 156	❍	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.546 to 0.567	157 to 164	❍	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.568 to 0.587	165 to 171	❍	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.588 to 0.607	172 to 177	❍	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.608 to 0.633	178 to 183	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.634 to 0.659	184 to 191	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.660 to 0.679	192 to 199	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.680 to 0.703	200 to 205	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.704 to 0.725	206 to 212	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.726 to 0.749	213 to 219	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.750 to 0.769	220 to 226	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.770 to 0.791	227 to 232	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.792 to 0.814	233 to 239	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.815 to 0.837	240 to 246	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍	❍
0.838 to 0.861	247 to 253	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍	❍
0.862 to 0.887	254 to 260	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍	❍
0.888 to 0.919	261 to 268	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍	❍
0.920 to 0.947	269 to 277	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍	❍
0.948 to 0.967	278 to 286	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍	❍
0.968 to 0.989	287 to 292	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍	❍
0.990 to 2.000	293 to	❍	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	❍	❍

❍:ON; –:OFF

✻ The max. width (293 mm or more) applies to manual bypass copying in which the copier is unable to detect paper width.

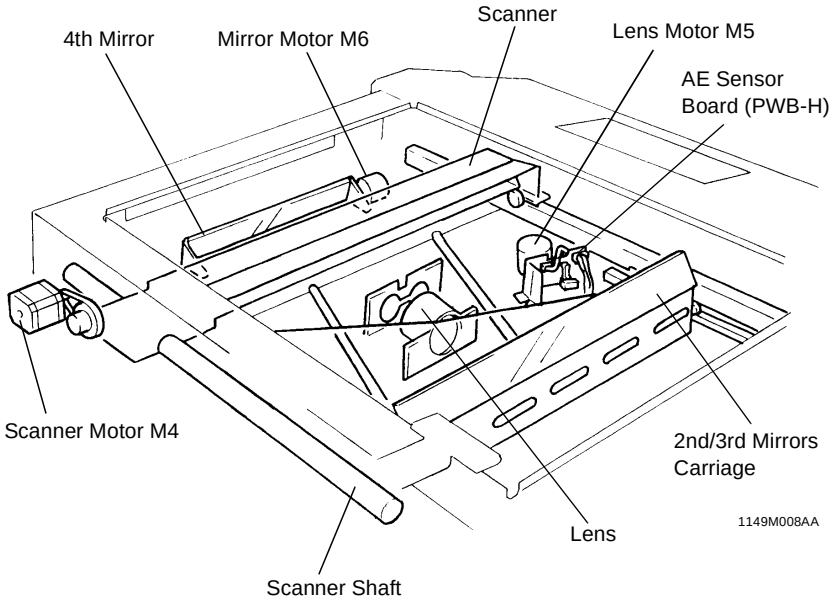


	Control Signal	ON	OFF	WIRING DIAGRAM
LA3	PWB-A PJ13A-1~14	Dynamic ON/ OFF Control		4-C

12 OPTICAL SECTION

As the Scanner is moved by the Scanner Motor, the light from the Exposure Lamp is reflected off the original and guided through the four Mirrors onto the surface of the PC Drum to form the electrostatic latent image.

The image is enlarged or reduced as necessary by changing the position of the Lens and 4th Mirror and varying the angle of the 4th Mirror.



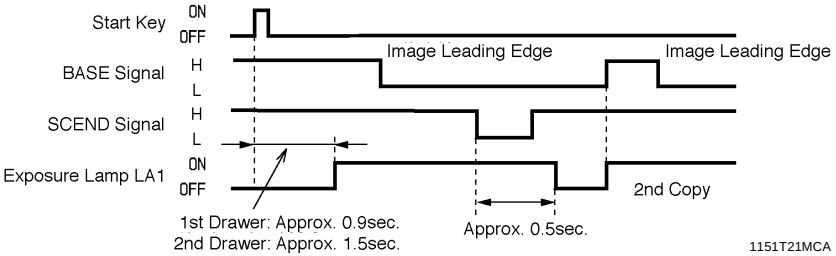
12-1. Exposure Lamp

An AC halogen lamp is used as an Exposure Lamp.

As the exposure level is adjusted on the control panel, the duty ratio of the pulse of AVR Remote from the Master Board changes to increase or decrease the Exposure Lamp voltage, thereby changing the image density.

In Photo mode, the voltages are varied on a level 2V (200V Areas: 4V) lower than the manual Exposure Lamp voltages.

Manual EXP Setting			9	8	7	6	5	4	3	2	1
Lamp Voltage Difference (V)	"Manual Level Priority"	Mode 1	–8	–5	–2	–1	Reference	+1	+2	+5	+8
		Mode 2	–8	–6	–4	–2	Reference	+2	+4	+6	+8
		Mode 3	–8	–7	–6	–3	Reference	+3	+6	+7	+8



	Control Signal	ON	OFF	WIRING DIAGRAM
AVR Remote Signal (LA1)	PWB-A PJ36A-4	L	H	8-C

12-2. AE Sensor

In the Auto Exposure Mode, the AE Sensor on AE Sensor Board measures the intensity of the light reflected off the original, by sampling the black/white ratio of a 210-mm-wide area of the original being measured. According to this measurement, the Exposure Lamp voltage is automatically increased or decreased so that copies of consistent quality are produced.

The output from the AE Sensor is applied to the Master Board which, in turn, varies the duty ratio of the AVR Remote which varies the Exposure Lamp voltage accordingly.

Original Density (B/W Ratio)	High	Low
Intensity of Reflected Light	Low	High
AE Sensor Board Output	High	Low
AVR Duty	Increased	Decreased
Exposure Lamp Voltage	Increased	Decreased

	Control Signal	ON	OFF	WIRING DIAGRAM
PWB-H (AE Sensor)	PWB-A PJ5A-2	Pulse output		8-F
AVR Remote Signal (LA1)	PWB-A PJ36A-4	L	H	8-C

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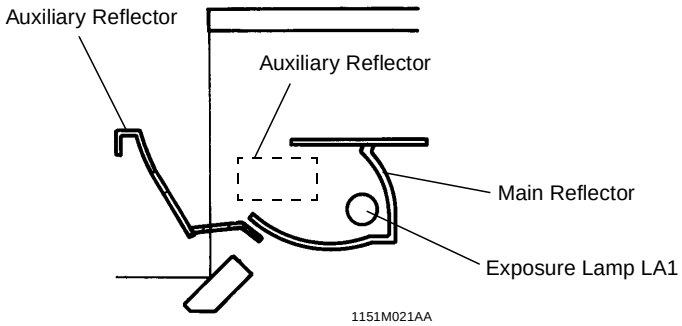
12-3. Lamp Reflectors

The Main Reflector ensures that light from the Exposure Lamp exposes all areas of the original. The Auxiliary Reflector reflects light onto the areas that the Exposure Lamp cannot illuminate when an original that does not lie flat on the Original Glass (such as a book) is being used. This reduces shadows which would otherwise be transferred to the copy.

The Main Reflector is of aluminum, while the Auxiliary Reflector is aluminum to which film has been deposited. The same film as that used on the Auxiliary Reflector is affixed to both ends of the frame to compensate for the reduced intensity of light around both ends of the Exposure Lamp.



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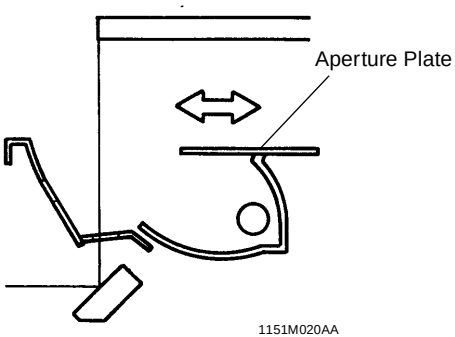
12-4. Aperture Plates

Four Aperture Plates are moved back and forth to ensure even light distribution.



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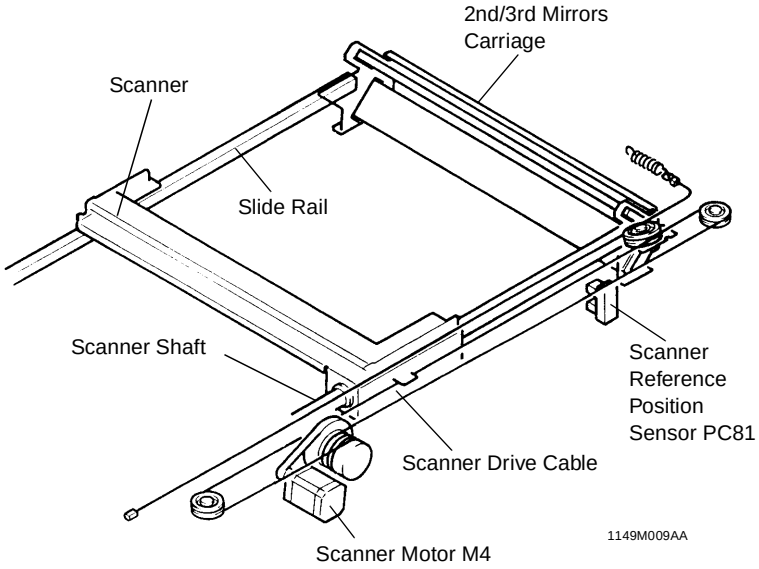
12-5. Scanner and 2nd/3rd Mirror Carriage Movement

The Scanner and 2nd/3rd Mirrors Carriage are moved by the Scanner Drive Cable fitted in the rear side of the copier. The Cable is driven by the Scanner Motor.

Both the Scanner and 2nd/3rd Mirrors Carriage slide along the Scanner Shaft at the rear side. While at the front side, there is a Slide Bushing attached to the underside of each of the bodies and that Bushing slides over the Slide Rail. The speed of the Scanner and 2nd/3rd Mirrors Carriage varies with different zoom ratios.

Scanner Reference Position Sensor detects the home position of the Scanner and 2nd/3rd Mirrors Carriage. If they are not at the home position when the copier is turned ON, the Scanner Motor is energized to move them to the home position.



The Scanner starts the scan motion when a Scan signal is output from the Master Board. At the start of a scan motion and other heavy load conditions, the Scanner Motor requires a large amount of current. The Current 1 or 2 signal from the Motor Drive Board is selected accordingly to vary the amount of current supplied to the Scanner Motor.

✻ The Current signal selection timing is controlled by software.

Current 1	H	H	L
Current 2	H	L	H
Operation	When the scan speed reaches a given level.	At scan start and during scan deceleration.	At return start and during return motion.

On receiving the Scan signal, the Motor Drive Board applies motor drive pulses, which are out of phase with each other, to the Scanner Motor. The motor speed is varied by changing the width of the pulses applied to the Scanner Motor.

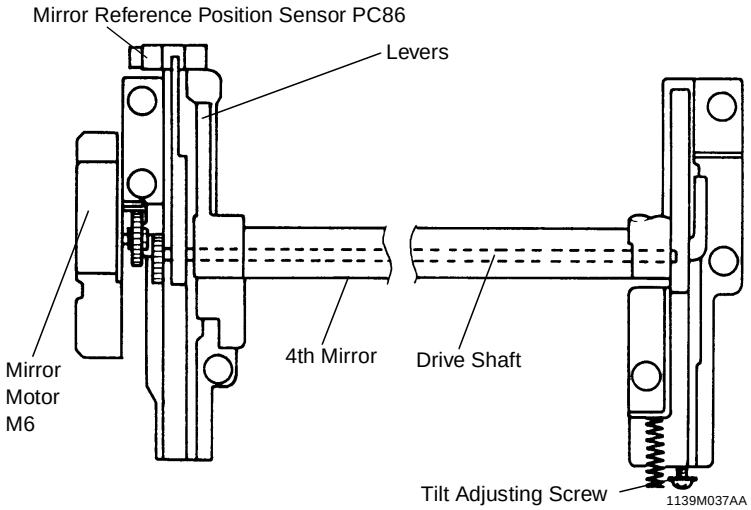
	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M4 Scan Signal	PWB-F	L	H	8-D
M4 Current Switching Signal 1	PWB-F	L	H	
M4 Current Switching Signal 2	PWB-F	L	H	

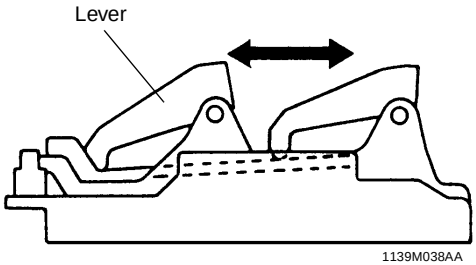
	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC81	PWB-A PJ39A-1	L	H	7-B

12-6. 4th Mirror Movement

The 4th Mirror is moved to vary the conjugate distance for a particular zoom ratio by driving the rack-and-pinion gears at the front and rear ends of the mirror using the Mirror Motor (stepping motor). The Levers of the Holder to which the Mirror is mounted slide along a tilted rail to change the Mirror angle. This ensures that the light strikes the surface of the PC Drum in the direction of the normal, thereby preventing resolution from being degraded.

Mirror Reference Position Sensor is used to control the position of the 4th Mirror. It ensures that the Mirror is located at the home position when the copier is turned ON.





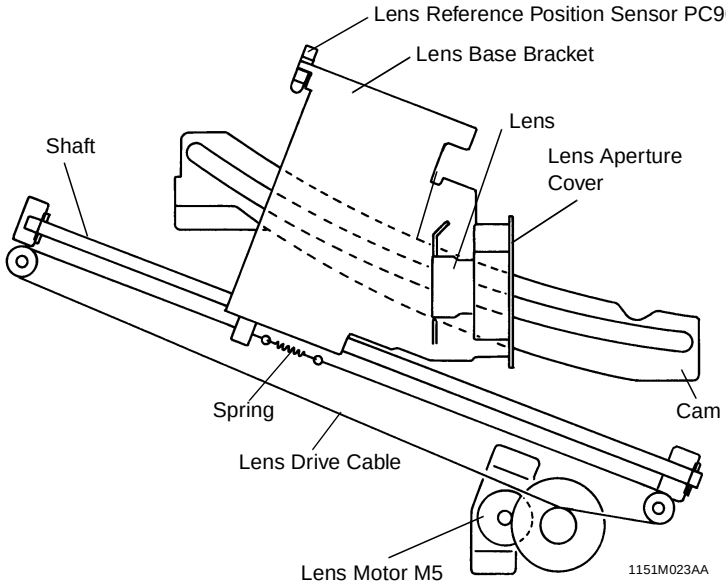
	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M6	PWB-F	L	H	8-B

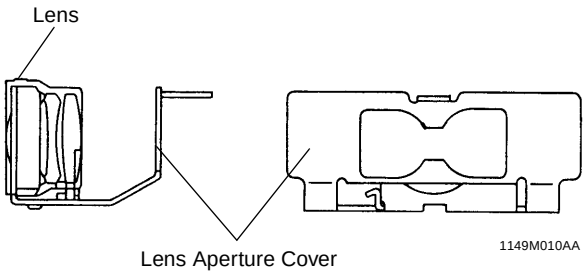
	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC86	PWB-A PJ40A-2	L	H	7-A

12-7. Lens Movement

The Lens is moved by the Lens Drive Cable which is driven by the Lens Motor (stepping motor). The motor drive pulses sent from the Motor Drive Board drive the Lens Motor to move the Lens a given distance, corresponding to the zoom ratio, from the reference position determined by Lens Reference Position Sensor.

There is a fixed-type Lens Aperture Cover provided at the rear of the Lens (on the 4th Mirror end). It limits the amount of light striking the surface of the PC Drum.





	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M5	PWB-F	L	H	8-B

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC90	PWB-A PJ40A-5	L	H	7-A

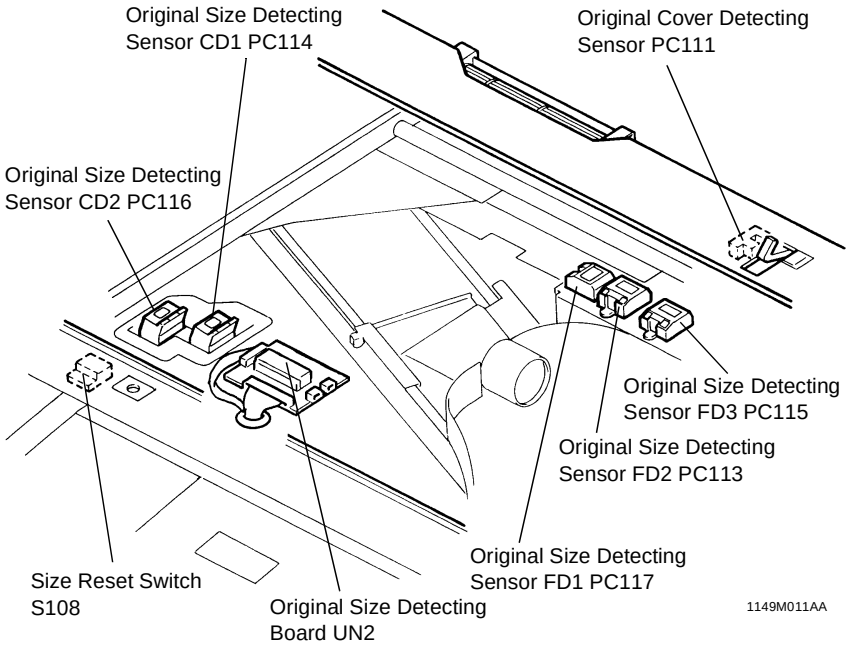
1173SBM1300A

13 ORIGINAL SIZE DETECTING SENSORS

The five sensors fixed in the optical section receive the light reflected off the original to determine the size of the original in the Auto Paper and Auto Size mode. (The image density of the original, or OD, that can be detected is 0.6 or less.)

1173SBM1301A

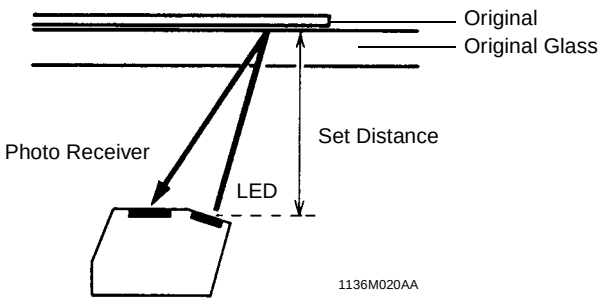
13-1. Identification of Original Size Detecting Sensors


Original Size Detecting Sensor CD1 PC114
Original Cover Detecting Sensor PC111
Original Size Detecting Sensor CD2 PC116
Original Size Detecting Sensor FD3 PC115
Original Size Detecting Sensor FD2 PC113
Original Size Detecting Sensor FD1 PC117
Size Reset Switch S108
Original Size Detecting Board UN2
1149M011AA

1173SBM1302A

13-2. Original Size Detecting Operation

Each photo receiver of the original size detecting sensors responds to reflected light of a given intensity with reference to the intensity of the light emitted by each LED. This allows the Original Size Detecting Board to determine whether or not there is an original within a set distance.



13-3. Sensor Locations

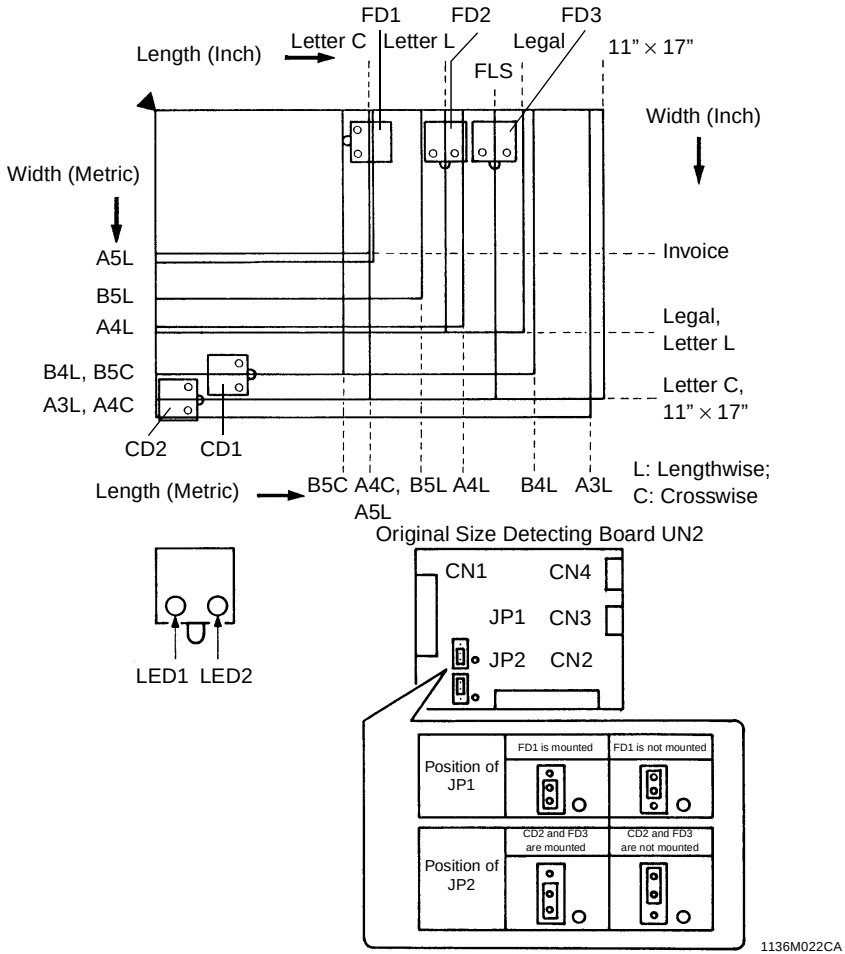
- The number and location of the Original Size Detecting Sensors vary depending on the marketing area as shown below.

Sensors / Areas	CD1 (PC114)	CD2 (PC116)	FD1 (PC117)	FD2 (PC113)	FD3 (PC115)
Metric Areas	❍	●	❍	❍	●
Inch Areas	❍	●	●	❍	●
Mixed inch/metric Areas	❍	❍	❍	❍	❍

❍: Standard ●: Optional

NOTE:

If the optional sensors are installed, set Jumper Connector JP2 on the Original Size Detecting Board as Illustrated below and run the F7 operation.



13-4. Size Detection

- Original Size Detecting Board reads the output data provided by the original size detecting sensors. By comparing the data from each sensor with the threshold level, it determines whether there is an original placed on the Original Glass. Original Size Detecting Board then determines the size of the original according to the combination of the data.

Metric Area

		FD1	FD2		FD3		CD1		CD2
Original Size	Size Determined by UN2	LED2	LED1	LED2	LED1	LED2	LED1	LED2	LED1
A3L	A3L (A3L)	❍	❍	❍	❍(❍)	❍(●)	❍	❍	❍(❍)
B4L	B4L (B4L)	❍	❍	❍	❍(❍)	❍(●)	●	❍	●(●)
A4L	A4L (A4L)	❍	❍	❍	●(●)	●(●)	●	●	●(●)
A5L	A5L (A5L)	❍	●	●	●(●)	●(●)	●	●	●(●)
A4C	A4C (A4C)	❍	●	●	●(●)	●(●)	❍	❍	❍(❍)
Letter L: 8-1/2" × 11"	Letter L (Letter L)	❍	❍	●	●(●)	●(●)	●	●	●(●)
11" × 17"	11" × 17" (A3L)	❍	❍	❍	❍(❍)	❍(●)	❍	❍	●(❍)
Legal: 8-1/2" × 14"	Legal (A4L)	❍	❍	❍	❍(●)	❍(●)	●	●	●(●)
FLS: 8-1/2" × 13"	FLS (A4L)	❍	❍	❍	❍(●)	●(●)	●	●	●(●)
Letter C: 11" × 8-1/2"	Letter C (A4C)	❍	●	●	●(●)	●(●)	❍	❍	●(❍)
No Original	No Original	●	●	●	●(●)	●(●)	●	●	●(●)

Inch Area

		FD1	FD2		FD3		CD1	
Original Size	Size Determined by UN2	LED2	LED1	LED2	LED1	LED2	LED1	LED2
11" × 17"	11" × 17" (11" × 17")	❍(❍)	❍	❍	❍(❍)	❍(❍)	❍	❍
Legal: 8-1/2" × 14"	Legal (Legal)	❍(❍)	❍	❍	❍(❍)	❍(❍)	●	●
Letter L: 8-1/2" × 11"	Letter L (Letter L)	❍(❍)	❍	●	●(●)	●(●)	●	●
Letter C: 11" × 8-1/2"	Letter C (Letter C)	❍(❍)	●	●	●(●)	●(●)	❍	❍
FLS: 8-1/2" × 13"	FLS (Legal)	❍(❍)	❍	❍	❍(❍)	●(❍)	●	●
Invoice: 5-1/2" × 8-1/2"	Invoice (No Original)	❍(●)	●	●	●(●)	●(●)	●	●
No Original	No Original	●(●)	●	●	●(●)	●(●)	●	●

✻ ❍: Original Present ●: Original Not Present

✻ If no optional sensors are mounted, data is processed as indicated in ( ) and the original sizes determined by Original Size Detecting Board are as indicated in ( ).

✻ Original Size Detecting Board does not use the data provided by LED1 of Original Size Detecting Sensor FD1 and LED2 of CD2 for the determination of the original size.

✻ Any non-standard size is rounded off to the nearest standard size.

13-5. Original Size Detection Timing

Master CPU on Master Board affirms and resets the readings of the original size at the following timings.

- Takes size readings: When the Original Cover is raised to an angle of 15° or more (Original Cover Detecting Sensor is deactivated)
- Affirms size readings: When the Original Cover is lowered to an angle of 15° or less (Original Cover Detecting Sensor is just activated); or, when the Start key is pressed with Original Cover Detecting Sensor in the deactivated state
- Resets size readings: When the Original Cover is raised (Size Reset Switch is deactuated)

1173SBM1306A

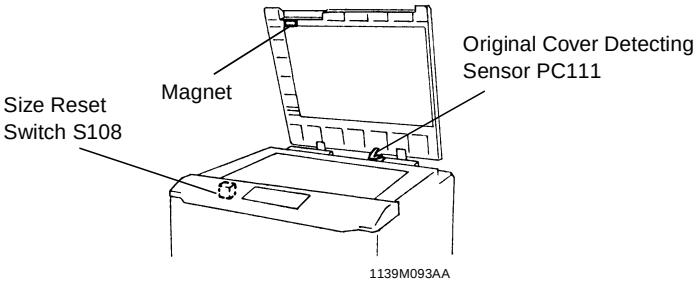
13-6. Original Cover Angle Detection

The Original Cover Detecting Sensor detects the angle of the Original Cover as it is raised. The following control is provided.

Original Cover raised to an angle of 15° or more:
The size of the original is read by the Original Size Detecting Sensors.

Original Cover raised to an angle of less than 15°:
When the Original Cover Detecting Sensor is activated, the master CPU of Master Board latches the original size data transmitted by Original Size Detecting Board. As soon as Size Reset Switch is turned ON, the size data is affirmed and the paper size is shown on the control panel.

The paper size selected is reset when Size Reset Switch is turned OFF.



	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC111	PWB-A PJ15A-12	L	H	7-B

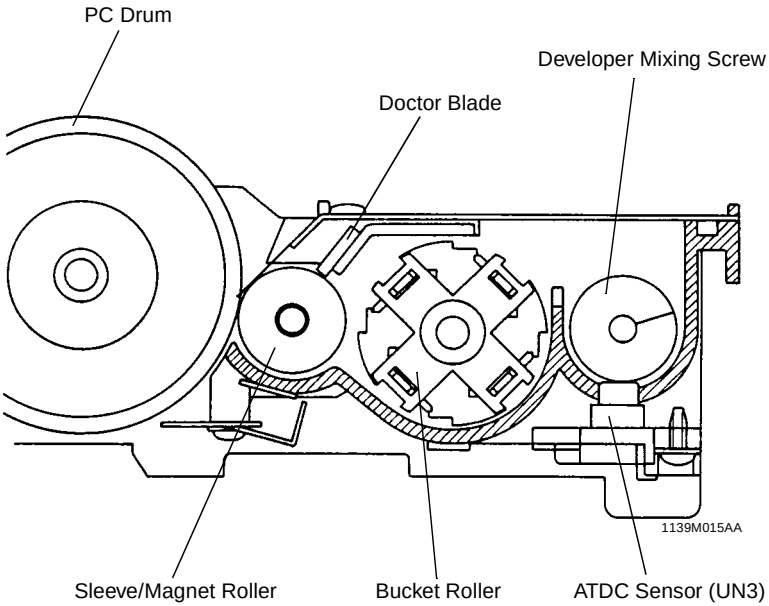
	Control Signal	ON	OFF	WIRING DIAGRAM
S108	PWB-A PJ7A-1	L	H	4-I

1173SBM1400A

14 DEVELOPMENT

The Developing Unit built into the Imaging Unit performs the following functions:

- Mixes the toner and carrier well to ensure that a sufficient amount of toner is positively charged.
- Detects the toner-to-carrier ratio of the developer by means of the ATDC Sensor and replenishes the supply of toner as necessary.
- Detects a toner empty condition by means of the ATDC Sensor.
- Ensures that a proper amount of toner is attracted to the PC Drum by means of its Sleeve/Magnet Roller, Developing Bias, and Doctor Blade.



14-1. ATDC Sensor

The copier compares the toner-to-carrier ratio (T/C) of the developer in the Developer Mixing Chamber detected by ATDC Sensor during a copy cycle with the reference ratio (6%) and, if it finds a lower ratio than the reference, replenishes the supply of toner.
The standard output voltage of the ATDC Sensor for the reference T/C (6%) is 2.5V.
Toner is replenished for 5 seconds (the Toner Bottle is turned one turn, which is equivalent to a run of 2 copy cycles) for each Toner Replenishing signal.

If the toner-to-carrier ratio becomes lower than 3.25% in a toner-empty condition, the copier inhibits the initiation of a new copy cycle (this feature can be enabled or disabled by a Tech. Rep. Choice mode). As soon as a ratio of 4% or more is recovered, the copier permits the initiation of a new copy cycle.

If the Front Door is swung open and closed with a T/C ratio of less than 4%, the copier initiates an Auxiliary Toner Replenishing sequence. (The toner-empty condition is canceled as soon as a T/C ratio of 4.5% is reached and the copier completes the Auxiliary Toner Replenishing sequence when the target level is reached.)

ATDC Sensor Automatic Adjustment
An automatic adjustment of the ATDC Sensor is made in the F8 or FF Test Mode operation.

✻ When F8 (or FF) is Run after Starter Has Been Changed:
Following the execution of the starter setup mode upon pressing the Start Key, the copier CPU reads the output value of the ATDC Sensor and adjusts the ATDC Sensor gain so that the output value becomes 2.5V.

NOTE:
If an F8 (or FF) operation is run at a time when the starter has not been changed, it can result in a wrong T/C reference value being set by the copier. Avoid casual use of F8.

If the setting value has been cleared because the RAM Board being replaced, use the "Level History" function of the Tech. Rep. mode to return the "ATDC Ref. Value" to the original value before the board was replaced.

Toner Empty Detection

The copier has no toner empty detecting sensor and, instead, the ATDC Sensor performs that function. The ATDC Sensor checks the toner-to-carrier ratio and, if it reads a T/C ratio lower than the reference level for 37 copies and, further, if it next reads a ratio 1% lower than the reference level, this is a toner-empty condition. The toner-empty condition is canceled after detection under any of the following conditions when the Front Door is swung open and closed:

- T/C is 4% or more: The toner-empty condition is canceled.
- T/C is less than 4%: The copier initiates an Auxiliary Toner Replenishing sequence and cancels the toner-empty condition as soon as T/C reaches 4.5%.

In addition, if the Tech. Rep. Choice setting has been made to inhibit the initiation of a new copy cycle in a toner-empty condition, the copier permits the initiation of a new copy cycle as soon as T/C reaches 4.0%.

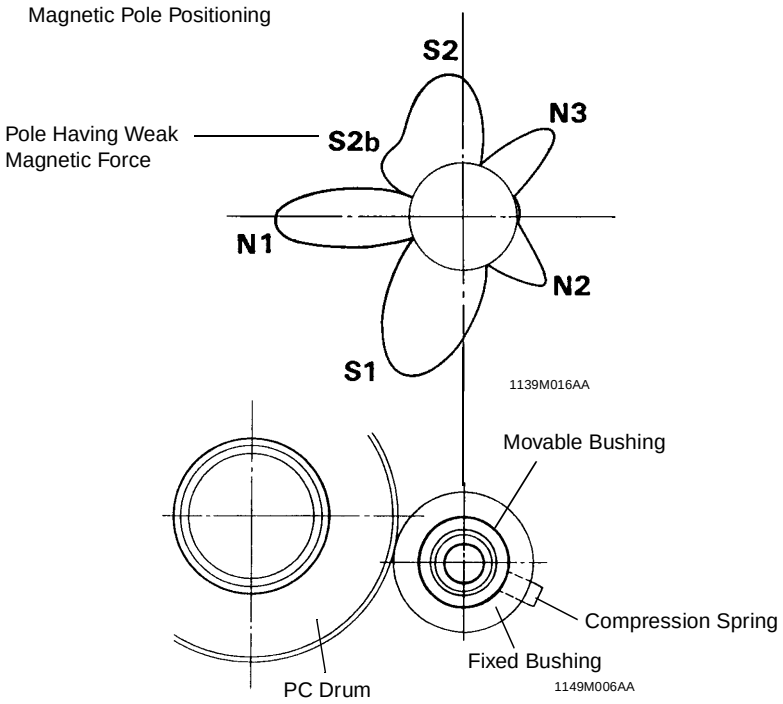
Controlled Part	Control Signal	T/C Ratio	Standard Output Voltage	WIRING DIAGRAM
UN3	PJ8A-3	6.0(%)	2.5(V)	4-E

14-2. Magnet Roller

The Magnet Roller of the Sleeve/Magnet Roller of this copier has the following magnetic characteristics. Part of pole S2 before the principal N1 pole (i.e., the area marked as S2b in the Fig. below) provides a very weak magnetic force. If developer is compacted and clogs at the Doctor Blade and, as a result, part of the surface of the Sleeve/Magnet Roller is not covered with developer, the nearby developer around S2b goes to those uncovered areas because of the weak magnetic force. This helps prevent blank lines from occurring on the copy.

The Sleeve Roller, onto which developer is attracted by the magnetic fields of force set up by the poles of the Magnet Roller, turns to convey the developer toward the point of development. This means that developer fresh from the Developer Mixing Chamber is always brought to the point of development.

As noted earlier, the Imaging Unit integrates the Developing Unit with the PC Drum into one body. Because of that, it is impossible to move the Developing Unit against the PC Drum, thereby providing a certain distance between the PC Drum and Sleeve/Magnet Roller. The Magnet Roller has therefore been made movable: the Bushing is pressed by compression springs thereby pressing the Positioning Collars on both ends of the Magnet Roller against the PC Drum. This ensures a given distance between the PC Drum and the Sleeve/Magnet Roller.



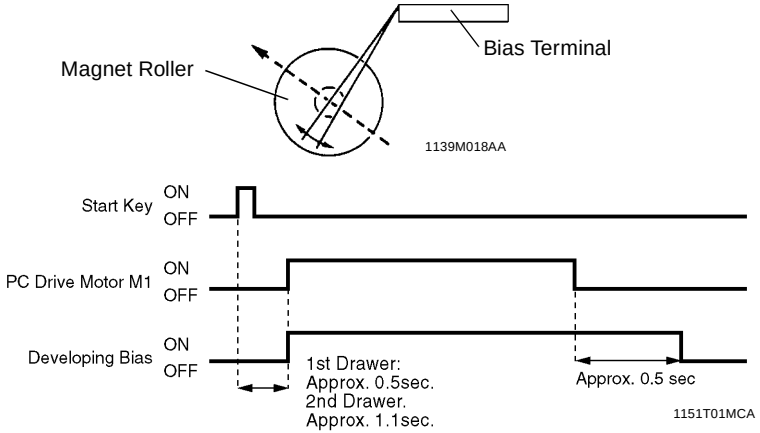
1173SBM1403A

14-3. Developing Bias

A negative voltage (Vb = Developing Bias voltage) is applied to the Sleeve Roller to prevent a foggy background on the copy. The amount of toner attracted onto the surface of the PC Drum depends on how much lower the PC Drum surface potential (Vi) is than Vb (i.e., the potential difference).

- When the potential difference is large, a greater amount of toner is attracted.
- When the potential difference is small, a smaller amount of toner is attracted.

Because the Magnet Roller of this copier is movable, a flat spring is used as the Bias Terminal which follows the movement of the Magnet Roller.

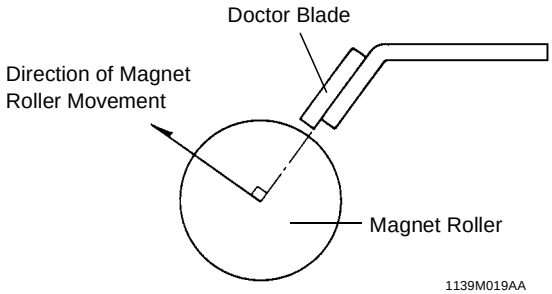


	Control Signal	ON	OFF	WIRING DIAGRAM
Developing Bias	PWB-A PJ27A-3	L	H	2-F

1173SBM1404A

14-4. Doctor Blade

The Doctor Blade installed over the Sleeve/Magnet Roller regulates the height of the developer brush on the surface of the Sleeve Roller. The Blade is perpendicular to the direction of movement of the Magnet Roller to minimize variations in the distance between the Doctor Blade and Magnet Roller as the Magnet Roller moves.

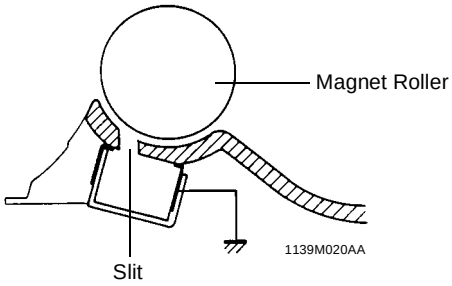


1173SBM1405A

14-5. Magnet Roller Lower Collector

✻ Except the U.S.A., Canada, and Europe

There is a slit provided under the Magnet Roller to collect insufficiently charged toner in the grounded Toner Antispill Trap. This effectively prevents the toner from spilling onto the mechanism inside the copier.



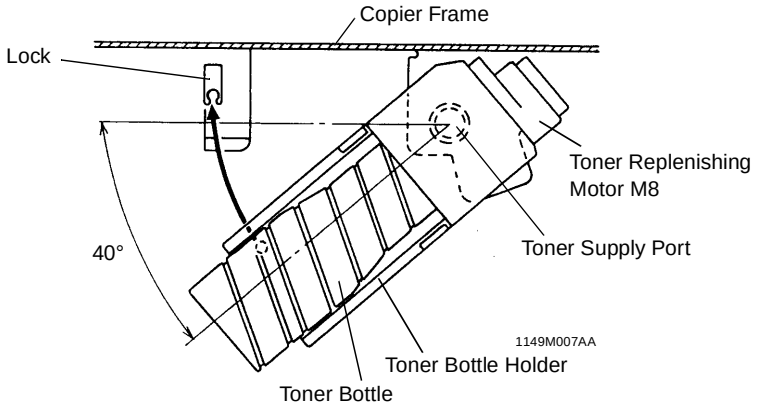
1173SBM1500A

15 TONER HOPPER

1173SBM1501A

15-1. Toner Hopper Locking/Unlocking

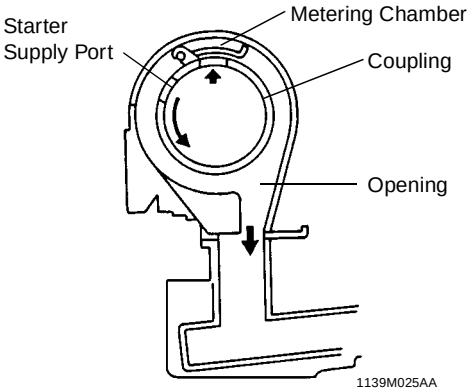
The Toner Hopper is not integrated into the Imaging Unit; instead, it is secured to the copier. To replace an empty Toner Bottle, the user first needs to swing the Toner Bottle Holder out 40° to the front. The Holder pivots about the Toner Supply Port as it is swung out or in, which effectively prevents toner from spilling when the Holder is swung out or in.

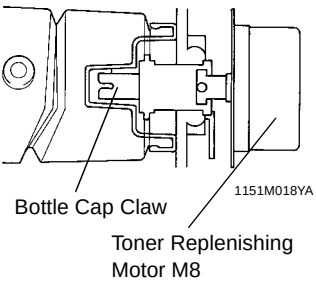


1173SBM1502A

15-2. Toner Replenishing

- Drive from Toner Replenishing Motor is transmitted via the motor shaft to the Bottle Cap Claw, which turns the Toner Bottle. As the Toner Bottle is fitted to the Coupling, both turn together during toner replenishing.
- There is a Metering Chamber provided at the toner supply port of the Coupling. It regulates the amount of toner that falls through the port.
- There is a supply port for the exclusive use of the starter. The starter does not pass through the Metering Chamber, which means that it takes a shorter time to charge the starter.



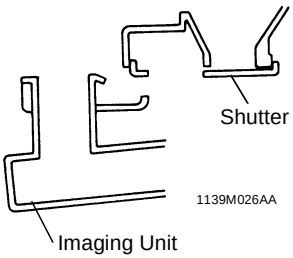


1173SBM1503A

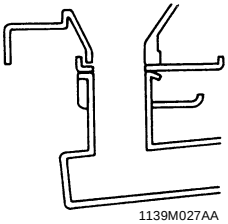
15-3. Shutter

The connection between the Toner Hopper and Imaging Unit is provided with a Shutter which prevents toner from spilling when the Imaging Unit is slid out of the copier.

Imaging Unit Out of Copier



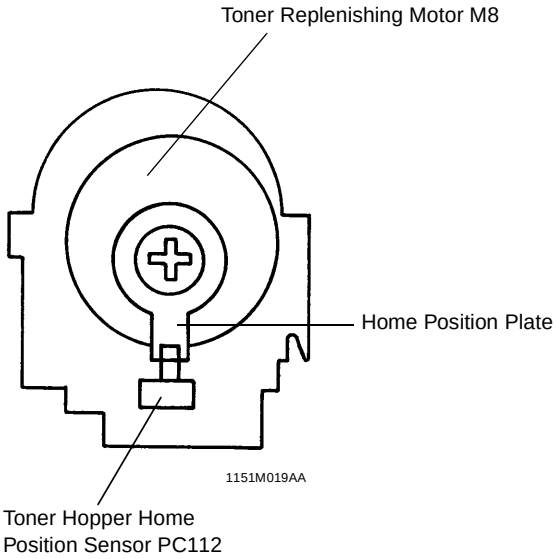
Imaging Unit in Position in Copier



1173SBM1504A

15-4. Toner Hopper Home Position Detection

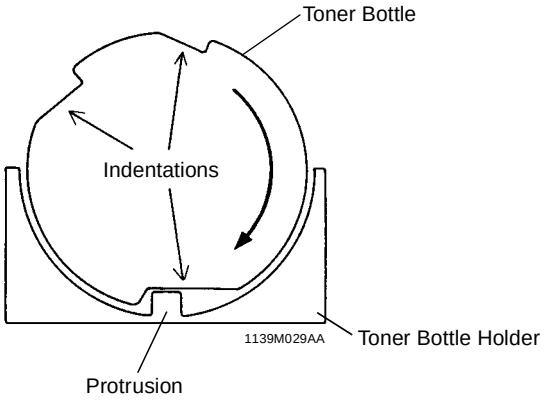
The coupling is fitted with a Home Position Plate which is detected by the Toner Hopper Home Position Sensor. This ensures that the Toner Bottle is located so that its opening is positioned on top whenever the Toner Replenishing Motor is deenergized.



1173SBM1505A

15-5. Toner Bottle Vibration

When the indentations at three places near the left end (as viewed when the Toner Bottle is in position) of the Toner Bottle move past the protrusion in the Toner Bottle Holder, the Toner Bottle is vibrated to prevent some of the toner from remaining unconsumed in the Bottle.



1173SBM1506A

15-6. Toner Replenishing Control

1. The ATDC Sensor installed in the Imaging Unit reads the toner-to-carrier ratio of the developer in the Developer Mixing Chamber for each copy cycle.
2. It samples the ratio for 290 msec.
3. If the average ratio reading is lower than the target level, a Toner Replenishing signal is output.
4. The Toner Replenishing Motor is turned one complete turn for each Toner Replenishing signal (which is equivalent to a supply of 0.3 to 0.6 g toner).

✻ The readings taken while the Toner Replenishing Motor is turning (it takes 5 seconds for the Toner Replenishing Motor to turn one complete turn) are ignored. This means that, in a multi-copy cycle, the ATDC Sensor may take readings as the next copy cycle is started while the Toner Replenishing Motor is turning; but, those readings are ignored.

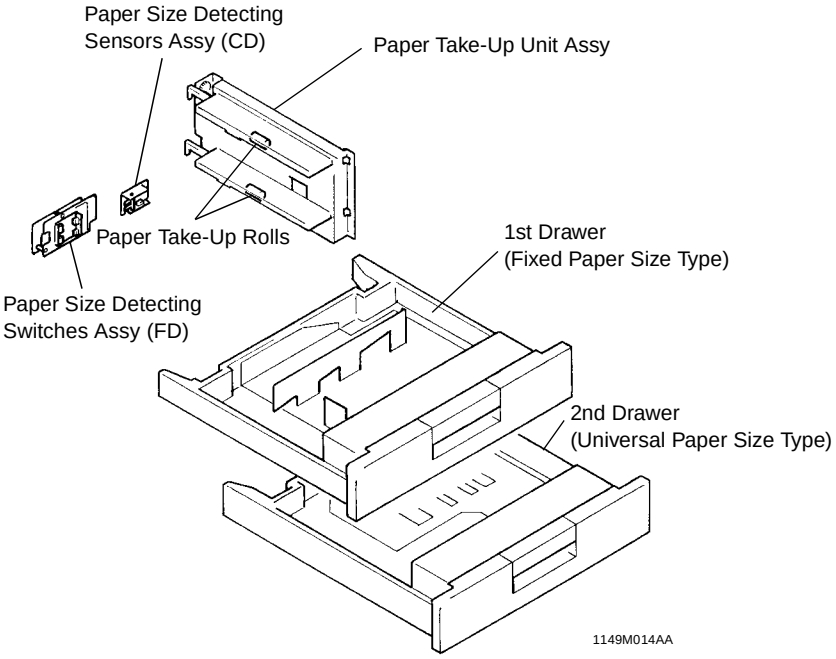
	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M8	PWB-A PJ11A-8A	L	H	4-A

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC112	PWB-A PJ15A-9	L	H	4-B

	Control Signal	T/C	Reference Voltage	WIRING DIAGRAM
UN3	PWB-A PJ8A-3	6.0%	2.5	4-E

16 PAPER TAKE-UP/FEED SECTION

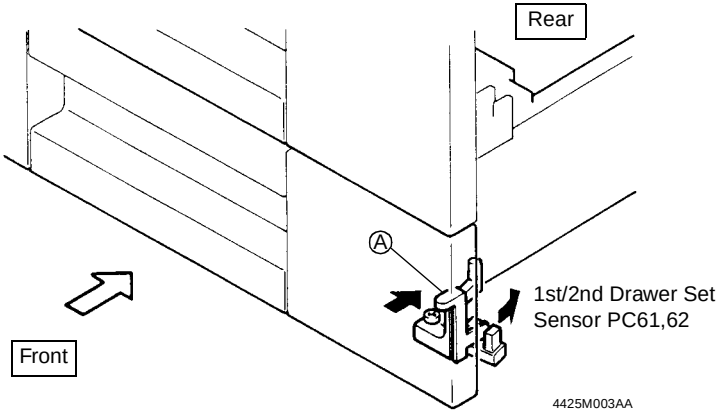
The copier is equipped with two paper drawers that can be slid out to the front of the copier. The 1st Drawer is a fixed paper size type, while the 2nd Drawer is a universal paper size type.



1173SBM1601A

16-1. Drawer-in-Position Detection

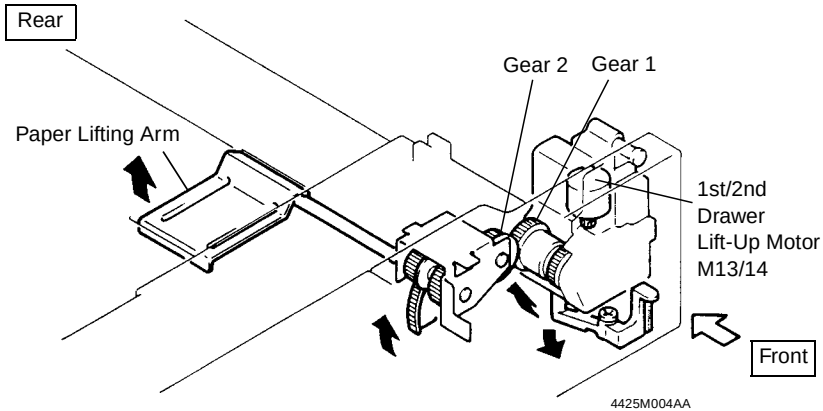
- When the drawer is slid into the copier, Drawer Set Detecting Lever A is pushed in the direction of the arrow, which blocks the Drawer Set Sensor (goes LOW).



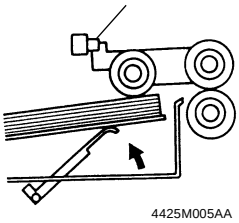
	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC61	PWB-A PJ18A-2	L	H	17-C
PC62	PWB-A PJ17A-8A	L	H	17-C

16-2. Drawer Paper Lifting/Lowering Mechanism/Control

- The paper lifting mechanism raises the paper in the drawer so that the top of the paper stack is pressed against the Paper Take-Up Roll at a constant pressure.
- When slid into the copier, the drawer presses the Drawer Set Lever which engages Lift-Up Motor Gear 1 with Paper Lifting Arm Gear 2.
- At the same time, the Drawer Set Sensor is blocked (goes LOW) and after 1 msec., the Lift-Up Motor starts turning, causing the Paper Lifting Arm to raise the Paper Lifting Plate.
- When the drawer is slid out, Lift-Up Motor Gear 1 is disengaged from Paper Lifting Arm Gear 2, lowering the Paper Lifting Plate.

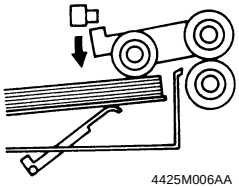


When Drawer is Slid in



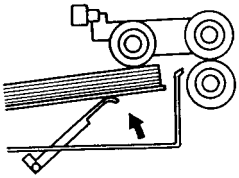
- The Paper Lifting Arm further raises the paper after the top sheet of paper is pressed against the Paper Take-Up Roll. As the light blocking plate blocks the Lift-Up Sensor (goes LOW), the Lift-Up Motor stops.

During Copying



4425M006AA

- As sheets of paper are used, the Paper Take-Up Roll lowers accordingly, unblocking the Lift-Up Sensor (goes HIGH).



4425M005AA

- The Lift-Up Motor starts running, raising the paper stack until the Lift-Up Sensor is blocked (output goes LOW).

- Energizing and deenergizing of the Lift-Up Motor keeps constant the pressure between the Paper Take-Up Roll and paper regardless of the height of the paper stack.

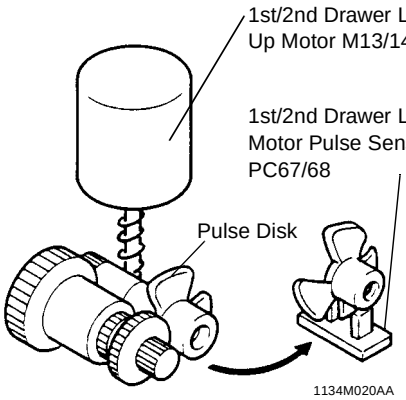
	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC65	PWB-A PJ17A-2A	L	H	17-D
PC66	PWB-A PJ17A-2B	L	H	17-D

	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M13	PWB-A PJ16A-5	L	H	17-C
M14	PWB-A PJ16A-7	L	H	17-C

1173SBM1603A

16-3. Paper Level Detection

- The amount of paper still available for use, or the paper level, of the 1st and 2nd Drawer is detected by 1st/2nd Drawer Lift-Up Motor Pulse Sensor and a pulse disk.
- The pulse disk is mounted on the shaft of the intermediary gear that transmits drive from the Lift-Up Motor. The speed of the pulse disk varies with different paper levels and the number of pulses detected by the Lift-Up Motor Pulse Sensor is used to determine the paper level.
- Counting of the number of pulses is started when the Lift-Up Motor is energized and continues until the output from the Lift-Up Sensor goes LOW. The total number of pulses is translated into the amount of paper which is shown on the Touch Panel as a graphic marker in units of 50 sheets of paper.
- As the paper is consumed and the top level of the paper stack lowers, the Lift-Up Motor is energized to raise the paper stack. During this time, the Lift-Up Motor Pulse Sensor detects pulses and that pulse count is accumulated. When the count reaches 50 sheets of paper, one segment of the paper level indicator on the Touch Panel goes out.



1134M020AA

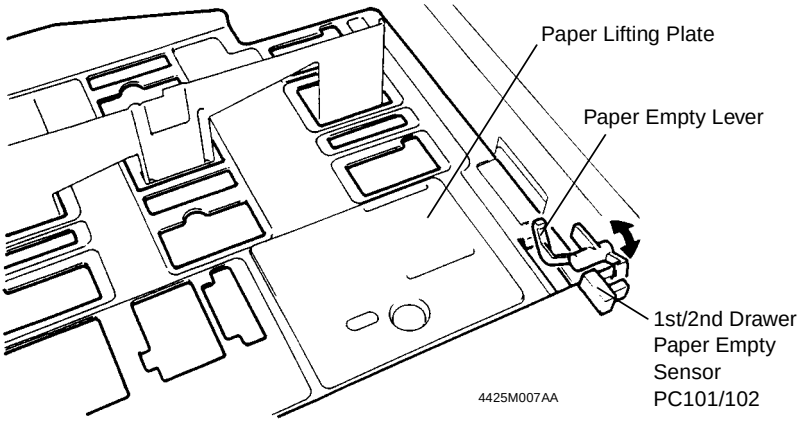
✻ Paper Level Indicator

- 1 to 50 sheets 1134M058AA
- 50 to 200 sheets 1134M059AA
- 200 to 350 sheets 1134M060AA
- 350 to 500 sheets 1134M061AA
- 500 sheets up 1134M062AA

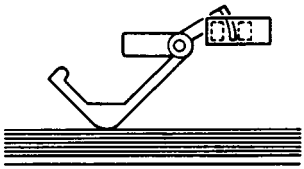
	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC67	PWB-A PJ19A-2	L	H	17-F
PC68	PWB-A PJ19A-5	L	H	17-F

16-4. Paper Empty Detection

- A paper empty condition in the 1st and 2nd Drawers is detected by 1st Drawer Paper Empty Sensor and 2nd Drawer Paper Empty Sensor, respectively, installed in the paper take-up area of each drawer.
- When the drawer, with no paper loaded in it, is roughly pulled out of the copier, the Paper Empty Lever can hit against the Paper Lifting Plate. To prevent this from occurring, the Paper Empty Lever is tilted in the direction of drawer movement.



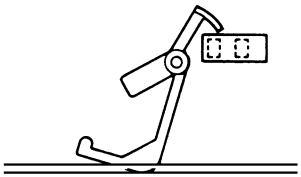
PC101/102 (blocked)



Paper Present

The paper stack raises the Paper Empty Lever which blocks 1st/2nd Drawer Paper Empty Sensor (goes LOW).

PC101/102 (unblocked)



Paper not Present

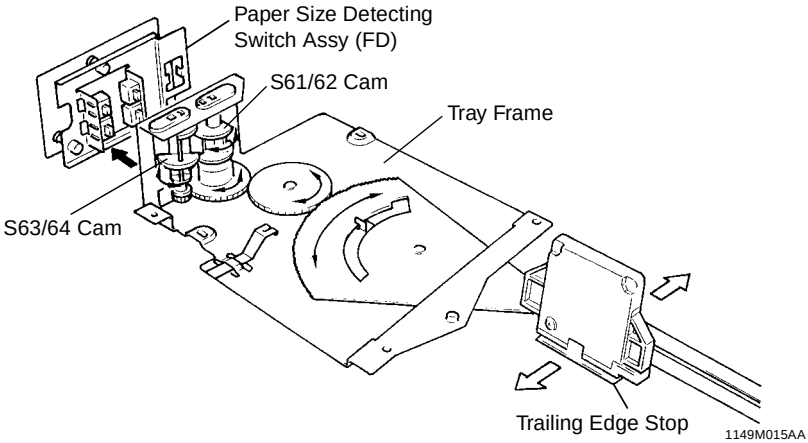
The light blocking plate of the Empty Lever clears 1st/2nd Drawer Paper Empty Sensor which goes HIGH.

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC101	PWB-A PJ19A-9	L	H	17-F
PC102	PWB-A PJ19A-12	L	H	17-F

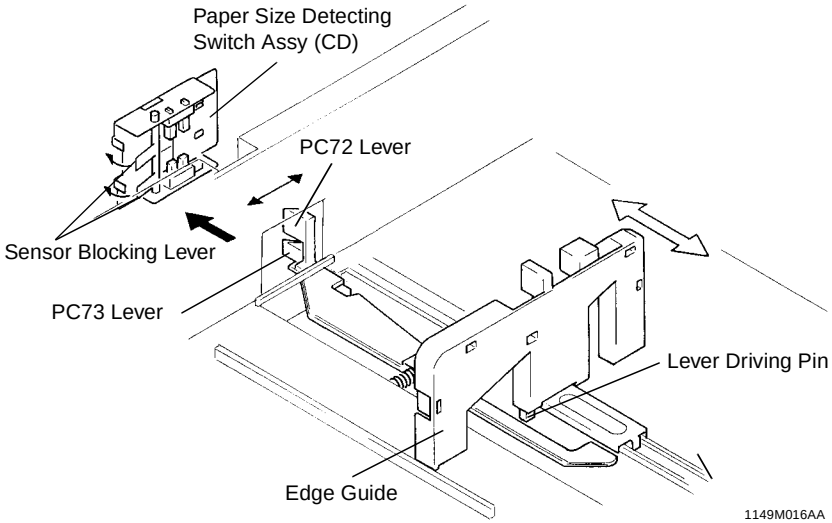
16-5. Universal Tray (2nd Drawer) Paper Size Detection

- The length (feeding direction) and width (crosswise direction) of the paper are independently detected and the copier determines the paper size by combining the two separate detections made. The “Universal Tray 13”x or 14x” function of “Tech. Rep. Choice” must be set for the length (FD) of FLS (13” or 14” long in the feeding direction).
- On the bottom of the tray is a lever fitted to the Trailing Edge Stop and another lever fitted to the Edge Guide. These levers actuate (activate) and deactuate (deactivate) the paper size detecting switches (and sensors) to allow the copier to determine a particular paper size.

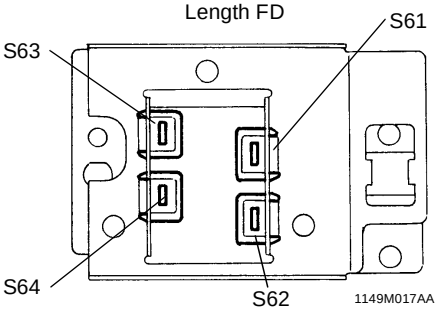
Detection in the Feeding Direction

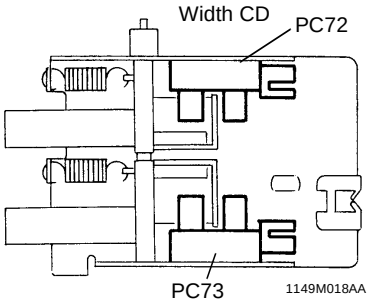


Detection in the Crosswise Direction



- Paper Size Detecting Switches/Sensors





- Details of Paper Size Detecting Switches/Sensors Operation and Detectable Paper Sizes

Paper Size	Inch Size	CD × FD (mm)	Paper Size Detecting Switches/Sensors					
			Length (FD)				Width (CD)	
			S61	S62	S63	S64	PC72	PC73
A5L (Invoice L)*2	(5-1/2" × 8-1/2")	148 × 210 (140 × 216)	❍	–	❍	–/❍	❍	❍
B5L	–	182 × 257	❍	❍	–	–	❍	❍
B5C	–	257 × 182	❍	–	–	–	–	–
A4L	–	210 × 297	–	❍	–	❍	–	–
A4C	–	297 × 210	❍	–	❍	–	❍	–
B4L	–	257 × 364	–	–	–	–	–	–
A3L	–	297 × 420	–	–	❍	❍	❍	–
Quarto C	10" × 8"	254 × 203	❍	–	❍	–	–	–
G. Letter L	8" × 10-1/2"	203 × 267	❍	❍	❍	–	–	–
G. Letter C	10-1/2" × 8"	267 × 203	❍	–	❍	–	–	❍
Folio*	8-1/4" × 13"	210 × 330	–	❍	❍	❍	–	–
Letter L	8-1/2" × 11"	216 × 279	❍	❍	❍	❍	–	–
Letter C	11" × 8-1/2"	279 × 216	❍	–	❍	❍	–	❍
Legal*	8-1/2" × 14"	216 × 356	–	–	–	❍	–	–
11 × 14	11" × 14"	279 × 356	–	–	–	❍	–	❍
Ledger	11" × 17"	279 × 432	–	–	❍	❍	–	❍
Comp Form	11" × 15"	279 × 381	–	–	–	–	–	❍
Korean FLS L	–	192 × 268	❍	❍	❍	–	❍	❍
FLS	8" × 13"	203 × 330	–	❍	❍	❍	–	–
Hongkong FLS L*	8-1/2" × 13"	216 × 330	–	❍	❍	❍	–	–
G. Legal L*	8-1/2" × 13"	216 × 330	–	❍	❍	❍	–	–
Folio (Eu.)*	8-1/4" × 14"	210 × 356	–	–	–	❍	–	–

Switch operation ❍: Actuated; –: Deactuated
Sensor operation ❍: Blocked; –: Unblocked

* A Tech. Rep. Choice function must be set for the size in the lengthwise direction.
L: Lengthwise; C: Crosswise

*2 Metric Areas: A5L
Inch Areas: Invoice L

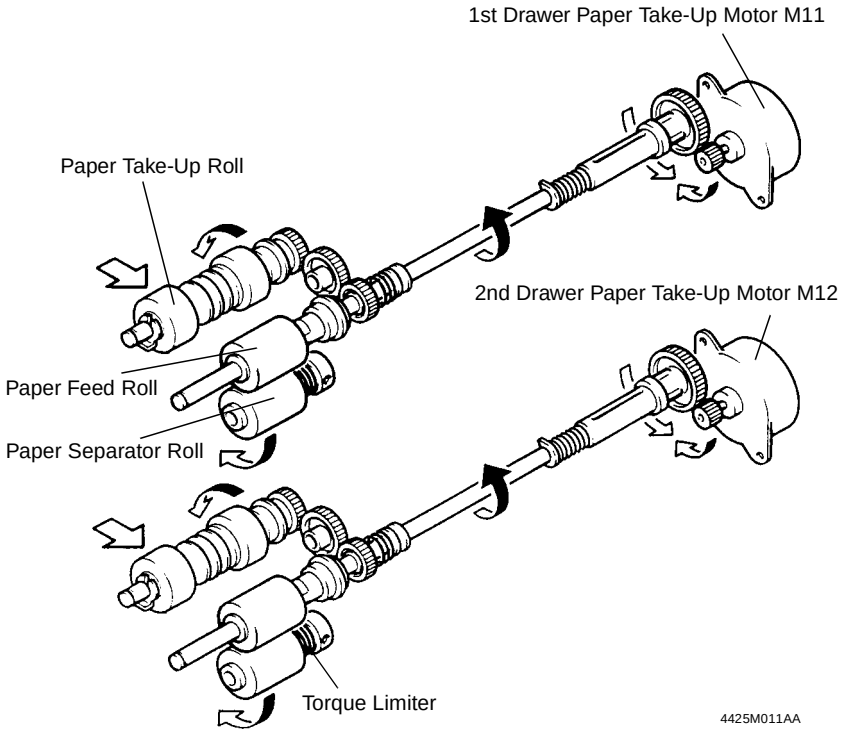
	Control Signal	Deactuated	Actuated	WIRING DIAGRAM
S61	PWB-A PJ21A-2	H	L	12-A
S62	PWB-A PJ21A-4	H	L	12-A
S63	PWB-A PJ21A-7	H	L	13-A
S64	PWB-A PJ21A-9	H	L	13-A

	Control Signal	Unblocked	Blocked	WIRING DIAGRAM
PC72	PWB-A PJ32A-2	H	L	7-C
PC73	PWB-A PJ32A-5	H	L	7-C

1173SBM1606A
16-6. Paper Take-Up Mechanism

1173SBM160601A
(1) Paper Take-Up Mechanism

- The paper take-up and feeding mechanism takes up paper from the drawer and feeds it to the Vertical Transport Roller.
- The take-up mechanism is driven by 1st/2nd Drawer Paper Take-Up Motor.
- Each paper take-up mechanism consists of a Paper Take-Up Roll, Feed Roll and Separator Roll with torque limiter.
- The Separator Roll is controlled by the torque limiter so that it will not transport more than one sheet of paper at a time.

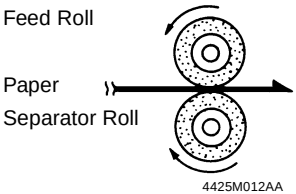


1173SBM160602A

(2) Paper Separating Mechanism

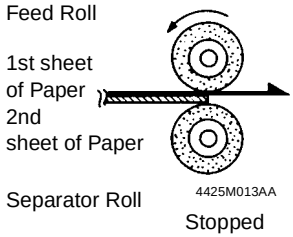
- The paper separating mechanism ensures that only the top sheet of paper is fed in by separating the second sheet of paper from the top one.
- This is accomplished by the difference in friction coefficient between the first and second sheets of paper.

<Normal Feeding>



- When only one sheet of paper is fed, the friction coefficient on the top side of the paper is equal to that on the underside.
- Driven by the Feed Roll, the paper drives the Separator Roll. This causes the paper to be sent to the Vertical Transport Section.
- The friction coefficient varies for different ambient conditions and types of paper being used, which often causes the Separator Roll to be stationary.

<Double Feeding>

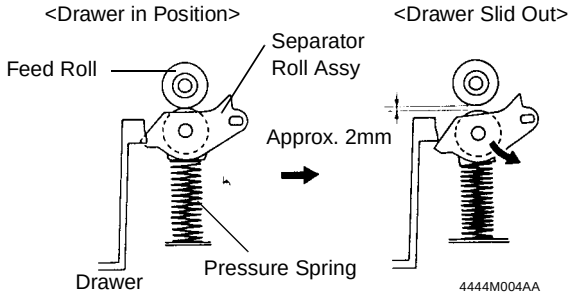


- Since the coefficient of friction between the top side of the first sheet of paper and the Feed Roll is greater than that between the first and second sheets of paper, the first sheet of paper is fed into the copier by the Feed Roll.
- Since the friction coefficient between the second sheet of paper and the Separator Roll is greater than that between the first and second sheet of paper, the Separator Roll is not driven and holds the second sheet of paper.

1173SBM160603A

(3) Paper Pressure Releasing Mechanism

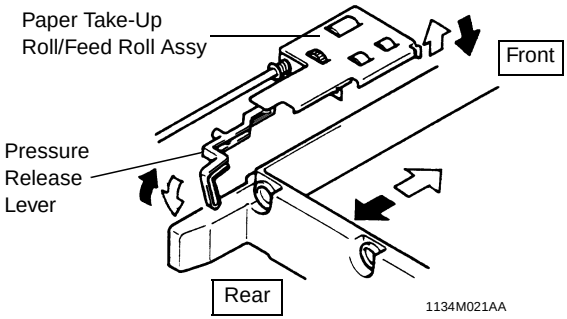
- If the drawer is pulled out while the paper is between the Feed Roll and the Separator Roll, the paper is left in the copier. Removal of the paper is difficult. With this copier, sliding out the drawer automatically disengages the paper and Paper Take-Up/Feed Roll.
- The Paper Pressure Releasing Mechanism makes it easier to remove a sheet of paper held between the Feed Roll and Paper Separator Roll by just sliding out the drawer. When the drawer is pulled out, the pressure release rail pushes down the Separator Roll Assy, disengaging the Feed Roll from the Separator Roll.



1173SBM160604A

(4) Paper Take-Up Roll Retraction Mechanism

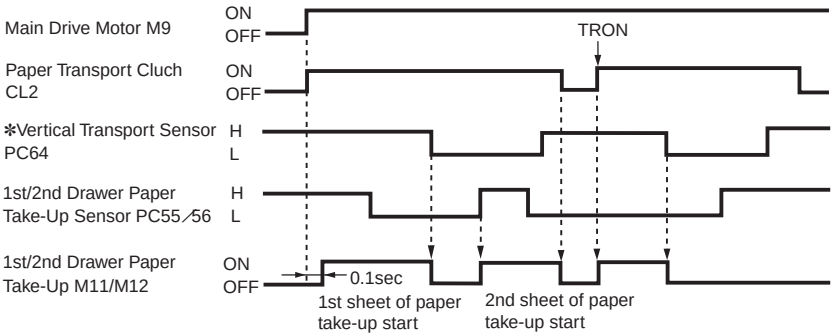
- When the drawer is slid out, the rear end of the drawer on the take-up side and the Pressure Release Lever push up the Paper Take-Up Roll/Feed Roll, freeing the paper from the Paper Take-Up Roll.



1173SBM1607A
16-7. Drawer Paper Take-Up Control

1173SBM160701A
(1) Paper Take-Up Motor Control

- A stepping motor is used for the Paper Take-Up Motor. Each motor is turned forward or backward by energizing its four internal coils using the pulse signals output from Master Board.



1173T16MCA

✻ For the first drawer:

- The Paper Take-up Clutch shuts OFF 0.5 sec. after the paper Take-up Sensor is blocked (L).

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC51	PWB-A PJ15A-5	L	H	1-H
PC55	PWB-A PJ17A-5A	L	H	17-E
PC56	PWB-A PJ17A-5B	L	H	17-E
PC64	PWB-A PJ17A-8B	L	H	17-E

	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M11	PWB-A PJ16A-1	L	H	17-B
M12	PWB-A PJ16A-2	L	H	17-B

1173SBM160702A

(2) Paper Take-Up Retry Control

- To minimize the occurrence of paper misfeed due to a slippery Paper Take-Up Roll, the Paper Take-Up Motor is kept deenergized for a given period of time before it is energized again, if a sheet of paper fails to reach the Paper Take-Up Sensor even after the lapse of a given period of time after the motor has first been energized. (This is referred to as the paper take-up retry function.)
- A misfeed results if the sheet of paper does not reach the Paper Take-Up Sensor even after three paper take-up sequences.

1173SBM160703A

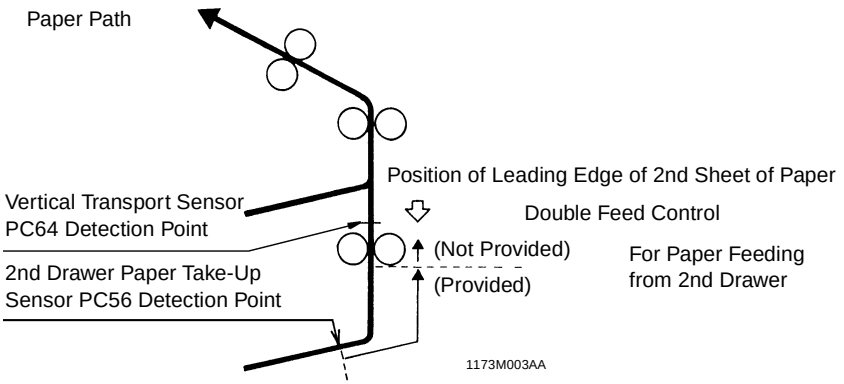
(3) Paper Take-Up Interval Control

- The Paper Feed Roll and Separator Roll may sometimes fail to separate the subsequent sheet of paper properly and the leading edge of that paper may be beyond the Feed and Separator Rolls inside the copier. If the next paper take-up sequence is started in this condition, the distance between the preceding and the current sheet of paper will become shorter than normal, resulting in a misfeed.
- To maintain a given paper take-up interval, therefore, this copier provides the following control. If it takes the paper more than a specified time to block (L) the Paper Take-Up Sensor after the Paper Take-Up Motor has been energized, the Paper Take-Up Motor is temporarily deenergized and, an appropriate period of time thereafter, it is energized again (paper take-up interval control).

1173SBM160704A

(4) Double Feed Paper Take-Up Control

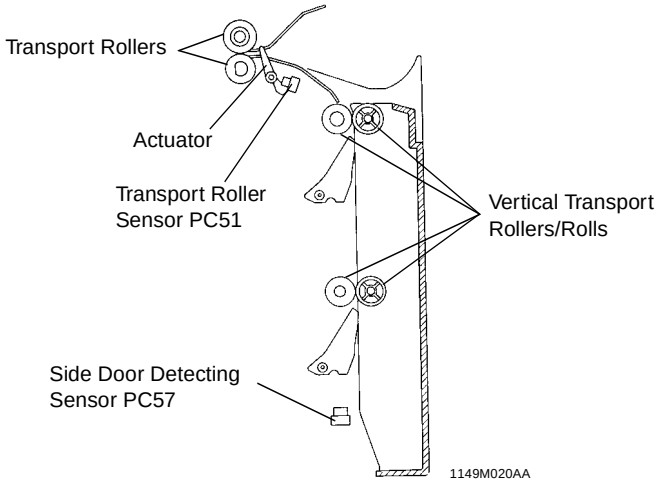
- Even if the Paper Take-Up Roll takes up two sheets of paper at one time, the double feed paper take-up control uses the second sheet of paper for the next copy cycle without causing a paper misfeed. It eliminates a paper misfeed that would otherwise result when two sheets of paper are taken up at once.
- If the second sheet of paper is stationary blocking the Paper Take-Up Sensor when the trailing edge of the first sheet of paper moves past the Vertical Transport Sensor, the copier determines that it is a double feed condition and provides double feed control. (The first drawer does not have double feed paper take-up control.)
- If, however, the second sheet of paper has reached the Vertical Transport Roller, the double feed control is not provided since the paper is fed further into the copier by the Vertical Transport Roller. This could result in a paper misfeed or the second sheet of paper being fed through the copier with the first one.



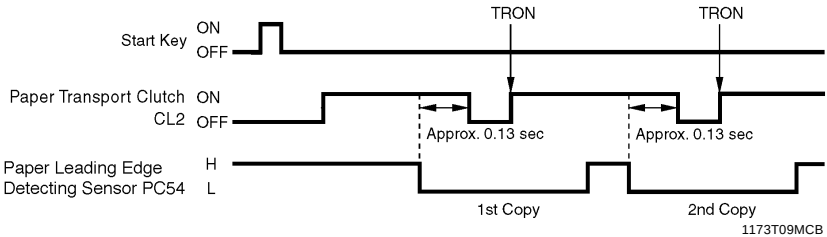
16-8. Vertical Paper Transport

The sheet of paper taken up by the Paper Take-Up Roll from the Drawer is fed along the Paper Guide to the Vertical Transport Rollers. The paper fed by the Vertical Transport Rollers reaches the Transport Rollers and is then fed up to the Synchronizing Rollers. The Transport Rollers are turned and stopped by the Paper Transport Clutch. Transport Roller Sensor immediately before the Transport Rollers detects a sheet of paper fed from the Vertical Transport Section or Manual Bypass Table.

The Cover for the Vertical Transport Section (i.e., the Side Door) can be opened and closed for clearing misfeeds. Side Door Detecting Sensor detects whether or not this Cover is open.



<Control>

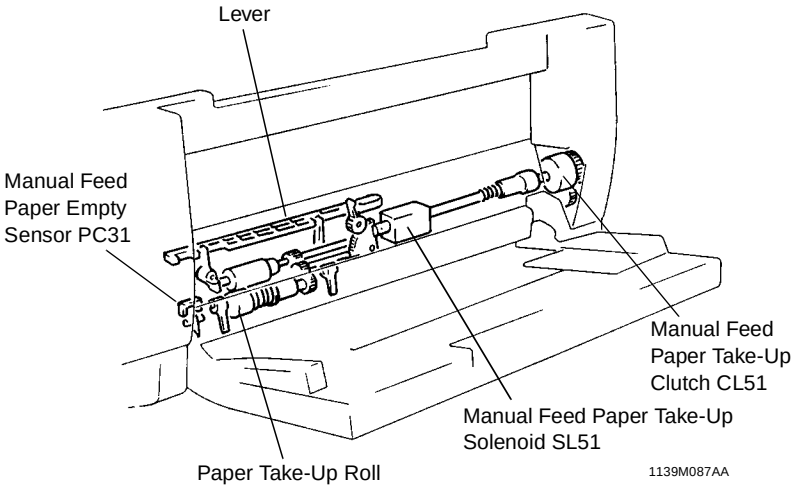


	Control Signal	Energized	Deenergized	WIRING DIAGRAM
CL2	PWB-A PJ11A-2B	L	H	1-G

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC57	PWB-A PJ18A-6	L	H	24-B

17 MULTI BYPASS TABLE

The Multi Bypass Table permits the user to make multiple copies (up to 50) on paper that cannot be fed automatically via any built-in paper drawer of the copier.



1173SBM1701A

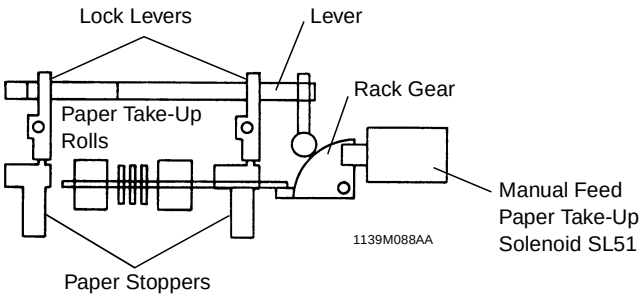
17-1. Paper Take-Up Mechanism

The Paper Take-Up Rolls are normally in their raised (retracted) position so that they will not hamper proper loading of paper. When the Start Key is pressed, Manual Feed Paper Take-Up Solenoid is deenergized causing the Paper Take-Up Rolls to press the paper stack downward and take up a sheet of paper.

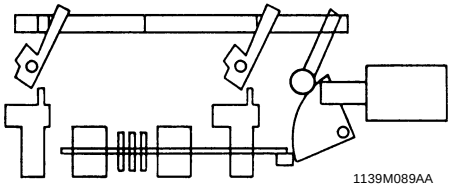
Paper Stoppers are provided that block the leading edge of the paper stack as it is loaded on the Table, preventing any portion of the leading edge of the paper from getting inside. These Stoppers are unlocked at paper take-up, allowing paper into the copier.

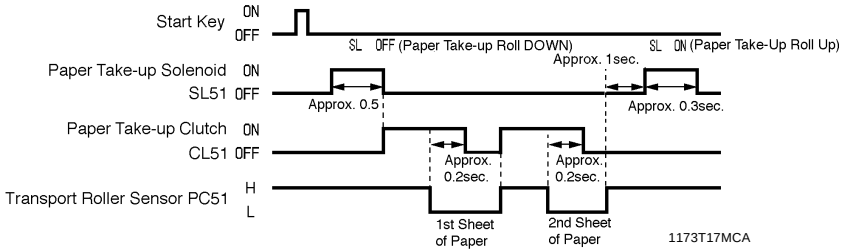
Manual Feed Paper Take-Up Clutch controls the turning and stop of the Paper Take-Up Rolls.

In Standby



At Take-Up





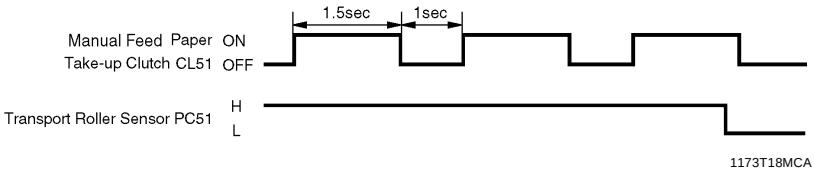
	Control Signal	Energized	Deenergized	WIRING DIAGRAM
CL51	PWB-A PJ14A-4	L	H	17-H
SL51 Down	PWB-A PJ14A-2	L	H	17-H
SL51 UP	PWB-A PJ14A-3	L	H	

1173SBM1702A

17-2. Paper Take-Up Retry Control

To minimize the occurrence of a paper misfeed due to a slippery paper Take-Up Roll, the Manual Feed Paper Take-Up Clutch is kept deenergized for a given period of time before it is energized again, if a sheet of paper fails to reach the Transport Roller Sensor even after the lapse of a given period of time after the clutch has first been energized. (This is referred to as the paper take-up retry function.)

A misfeed results if the sheet of paper does not reach the Transport Roller Sensor even after three paper take-up sequences.

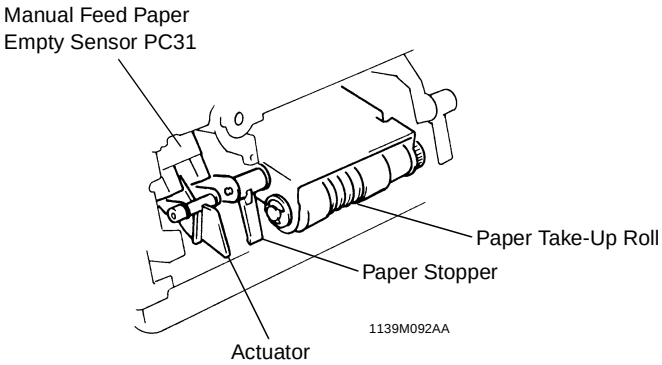


1173SBM1703A
17-3. Paper Separating Mechanism

The paper separating mechanism ensures that only the top sheet of paper is fed in by separating the second sheet of paper from the top one. This is accomplished by the Torque Limiter fitted to the Separator Roll shaft which stops the Separator Roll when there is a change in friction between the Feed and Separator Rolls.

1173SBM1704A
17-4. Paper Empty Detection

The Multi Bypass Table is equipped with a Manual Feed Paper Empty Sensor which detects a sheet of paper at the manual bypass port.

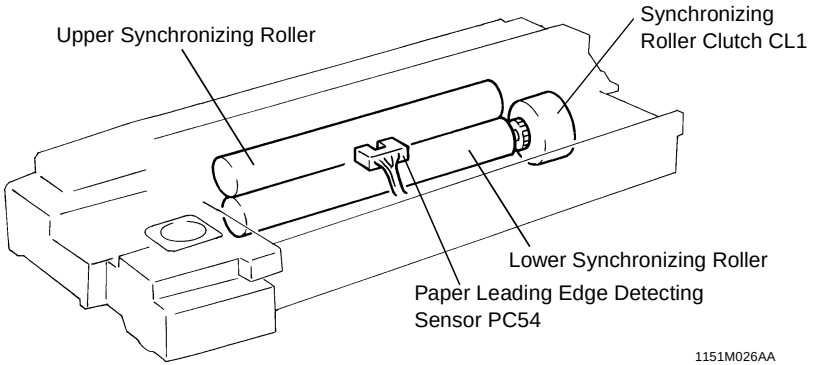


	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC31	PWB-A PJ14A-6	L	H	17-I

18 SYNCHRONIZING ROLLERS

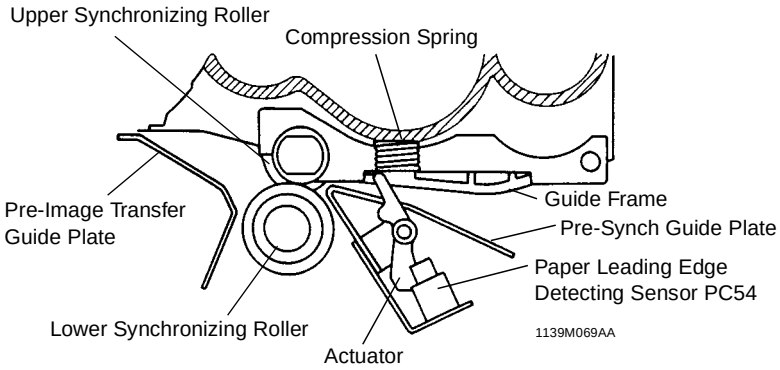
The Synchronizing Rollers, operating in phase with the Scanner scan motion and paper feeding, synchronize the leading edge of the copy paper accurately with the leading edge of the toner image on the PC Drum.

The Upper Synchronizing Roller is a metal roller covered with a polyvinyl chloride tubing, while the Lower one is a rubber roller.



To facilitate clearing of misfeeds, the Upper Synchronizing Roller is installed in the Imaging Unit. It is fitted to the Guide Frame of the Imaging Unit and the Compression Springs at the front and rear ends press the Roller downward so that it makes contact with the Lower Synchronizing Roller. The Lower Roller is driven by the drive source, while there is a gear train that transmits the rotation of the Lower Roller to the Upper Roller, thus ensuring good paper transport performance.

To ensure good image transfer during conditions of high humidity, the Pre-Synch Guide Plate is electrically floated by a plastic spacer, grounded through an 82MΩ resistor and 1kV varistor.

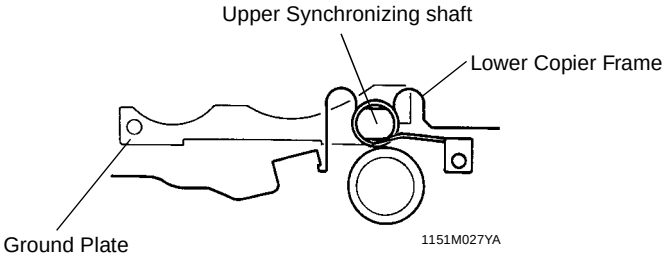


1173SBM1801A

18-1. Upper Synchronizing Roller Positioning

Since the Upper Synchronizing Roller is fitted to the Imaging Unit, it must be correctly positioned with reference to the Lower Synchronizing Roller when the Upper Half of the copier is swung down into the locked position. For this purpose, slots are cut in the lower copier frame and the Bushings of the Upper Synchronizing Roller fit into these slots.

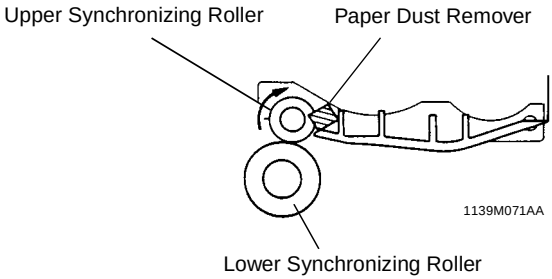
The Upper Synchronizing Roller is grounded through the Bushings which are in contact with the frame. To positively ground the Roller, the Ground Plate fitted to the lower frame makes contact with the Shaft of the Upper Synchronizing Roller.



1173SBM1802A

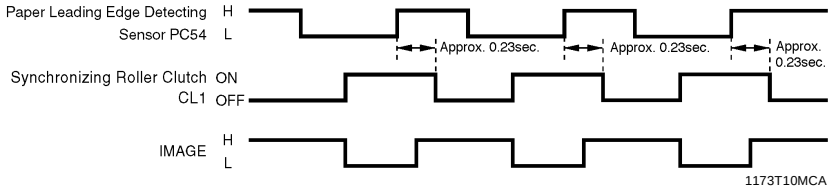
18-2. Paper Dust Remover

The Paper Dust Remover is installed so that it makes contact with the Upper Synchronizing Roller. Since the Upper Synchronizing Roller is covered with a vinyl tubing, triboelectric charging occurs as the Roller turns in contact with the Paper Dust Remover. As paper is then fed between the Synchronizing Rollers, the charges on the tubing attract paper dust from the paper. The dust is then transferred onto the Paper Dust Remover.



18-3. Synchronizing Roller Control

The Synchronizing Rollers are started as the Synchronizing Roller Clutch is energized upon reception of a signal from the Master Board.



	Control Signal	Energized	Deenergized	WIRING DIAGRAM
CL1	PWB-A PJ11A-4B	L	H	1-G

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC54	PWB-A PJ15A-2	L	H	1-H

19 IMAGE TRANSFER AND PAPER SEPARATION

Image Transfer

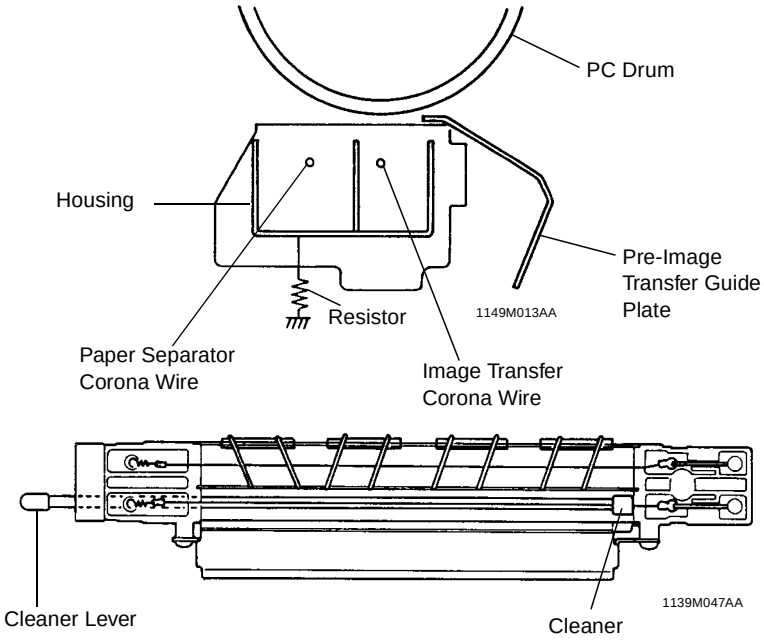
The Image Transfer Corona applies a DC negative corona emission to the underside of the paper thereby attracting the positively charged toner onto the surface of the paper to form a visible, developed image of the original. The Corona Unit is provided with a Corona Wire cleaning mechanism: the operator has only to pull out the Lever on which the Cleaner is mounted from the front of the copier, which cleans the Wire.

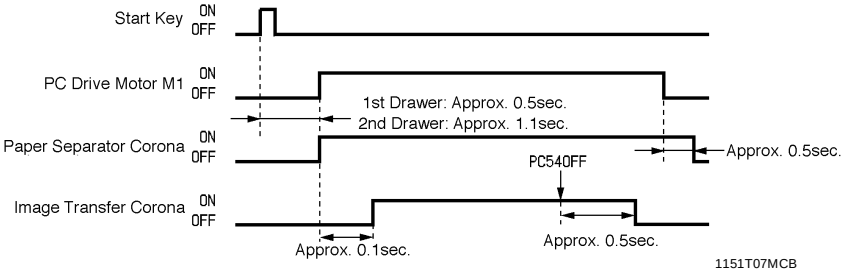
Paper Separation

The Paper Separator Corona showers the underside of the paper with both positive and negative charges so that the paper can be easily separated from the PC Drum. In addition, two Paper Separator Fingers physically peel the paper off the surface of the PC Drum. (For details, see PAPER SEPARATOR FINGERS.)

The Image Transfer/Paper Separator Coronas Unit is provided with a Pre-Image Transfer Guide Plate that determines the angle at which the paper comes into contact with the PC Drum and keeps an optimum distance between the paper and the PC Drum so that the image may be properly transferred onto the paper.

The Image Transfer/Paper Separator Coronas Unit is grounded via a 2.6MΩ resistor, which improves its efficiency to discharge to the PC Drum side, thus reducing the output current from the High Voltage Unit.



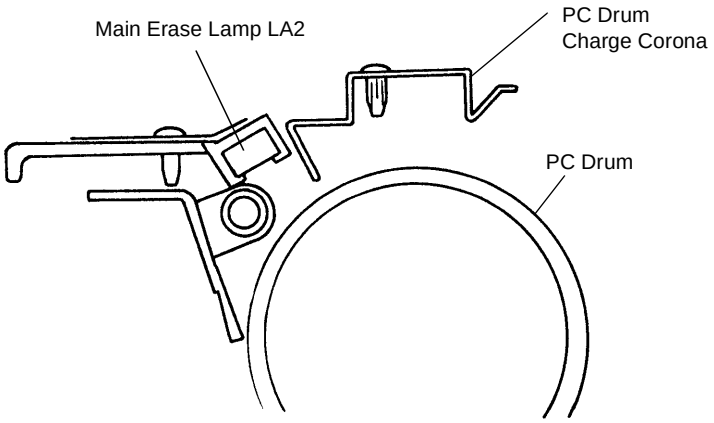


	Control Signal	ON	OFF	WIRING DIAGRAM
Image Transfer Corona	PWB-A PJ27A-2	L	H	1-F
Paper Separator Corona	PWB-A PJ27A-3	L	H	1-F

1173SBM2000A

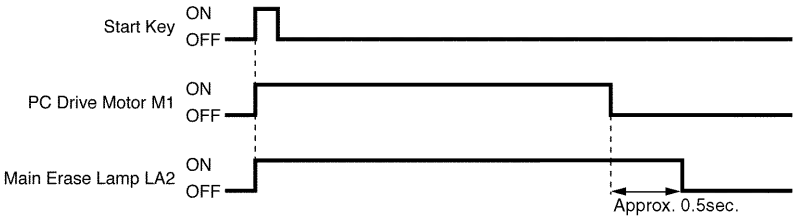
20 MAIN ERASE LAMP

Main Erase Lamp is turned ON to neutralize any surface potential remaining on the surface of the PC Drum after cleaning.



1149M012AA

The Main Erase Lamp is not a single lamp. A total of 40 LEDs are mounted on a board to make up Main Erase Lamp. The Main Erase Lamp board is fitted with an acrylic cover to protect the LEDs from contamination.



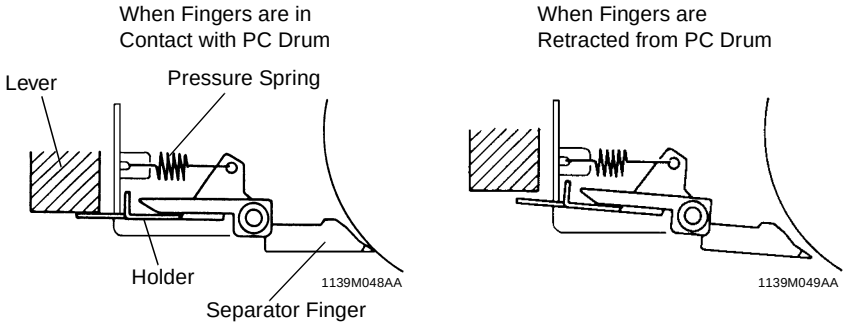
1173T19MCA

	Control Signal	ON	OFF	WIRING DIAGRAM
LA2	PWB-A PJ8A-8	H	L	4-E

21 PAPER SEPARATOR FINGERS

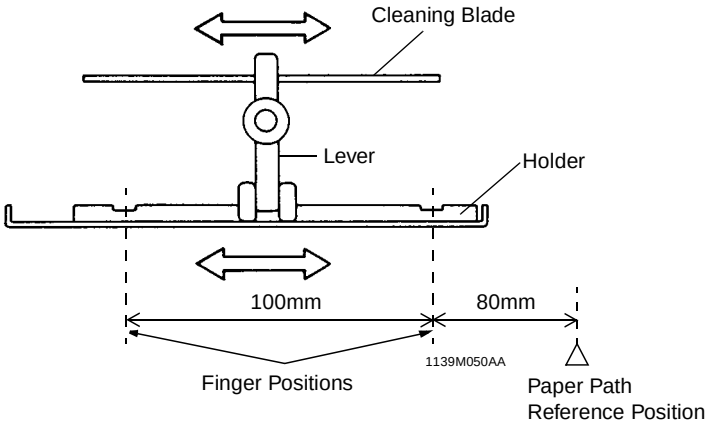
After image transfer, an AC corona emission is applied to the underside of the paper by the Paper Separator Corona to neutralize the paper so that it can be easily separated from the PC Drum. To further ensure that the paper is positively separated from the PC Drum, there are two Paper Separator Fingers attached to the Imaging Unit. They physically peel the paper off the surface of the PC Drum.

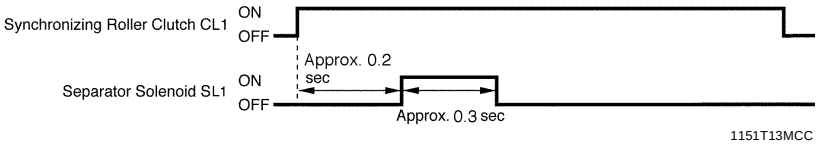
To prevent the Paper Separator Fingers from damaging the surface of the PC Drum, they are kept in the retracted position whenever they are not at work. As illustrated below, the Fingers are brought into contact with, and retracted from, the surface of the PC Drum by the Lever which is operated by the Separator Solenoid.



The Paper Separator Fingers are also moved over a given distance to the front and rear so that they will contact wider areas of the surface of the PC Drum, thus preventing localized damage to the PC Drum surface. This lateral movement is done by the Lever connected to the Cleaning Blade and, when the Cleaning Blade is moved, the Separator Fingers are also moved back and forth.

✻ Lateral Movement: 3.7 mm





	Control Signal	Energized	Deenergized	WIRING DIAGRAM
SL1	PWB-A PJ7A-4	L	H	2-A

1173SBM2200A

22 CLEANING UNIT

1173SBM2201A

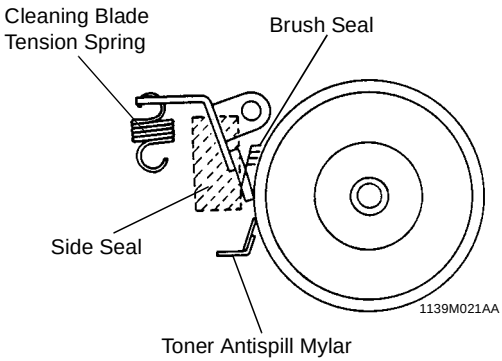
22-1. Cleaning Unit

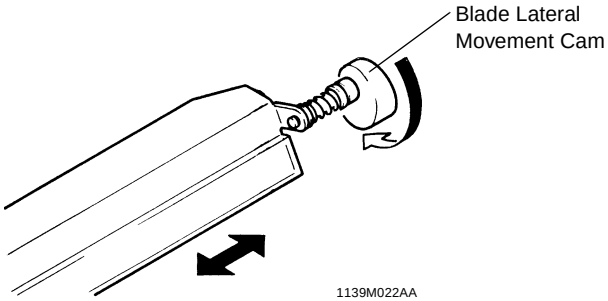
The Cleaning Blade is pressed tightly against the surface of the PC Drum and scrapes off any toner remaining on the surface after image transfer and paper separation have been completed.

The Cleaning Blade is moved back and forth to prevent the PC Drum from deteriorating and the Cleaning Blade from warping away from the surface of the PC Drum.

A Toner Antispill Mylar affixed to the Imaging Unit prevents toner scraped off the surface of the PC Drum from falling down onto the surface of the copy paper or the paper path.

In addition, a Side Seal and Brush Seal are affixed to both ends of the Imaging Unit on both sides of the Cleaning Blade. They prevent toner from spilling from both ends of the Cleaning Blade.



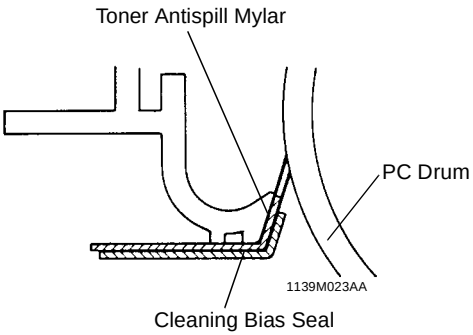


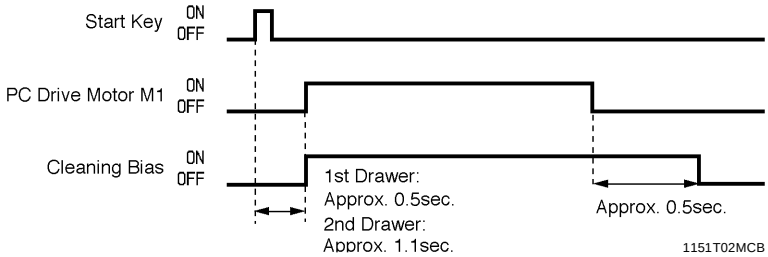
1173SBM2202A

22-2. Cleaning Bias

✻ Except the U.S.A., Canada, and Europe

There is a Cleaning Bias Seal installed to minimize damage to the PC Drum from acid paper.



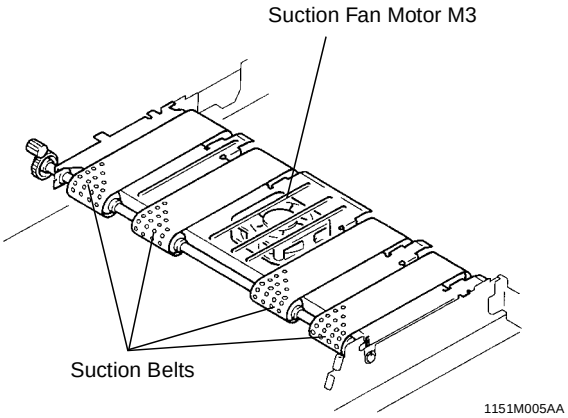


	Control Signal	ON	OFF	WIRING DIAGRAM
Cleaning Bias	HV1	L	H	1-F

23 PAPER TRANSPORT

After having gone through the image transfer and paper separation processes, the paper is then transported to the Fusing Unit by the Suction Belts of the Suction Deck driven directly by the Main Drive Motor.

The Suction Fan Motor draws the paper onto the turning Suction Belts for positive transport of the paper.

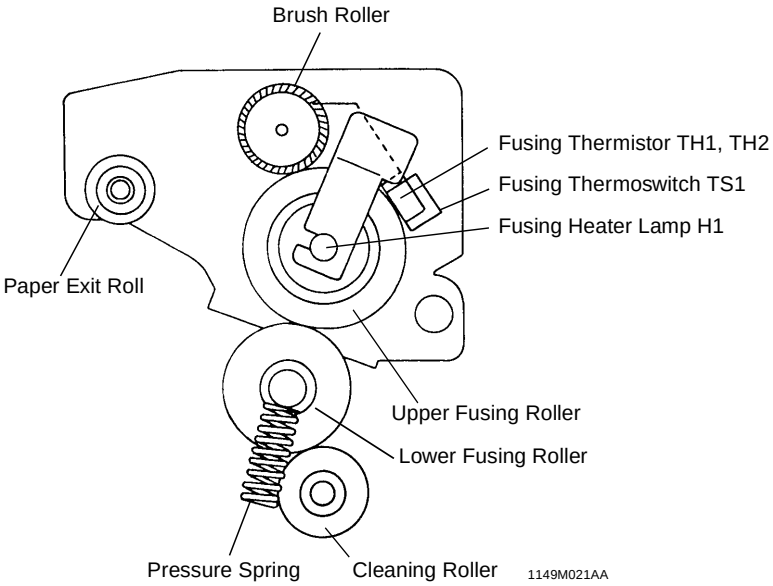


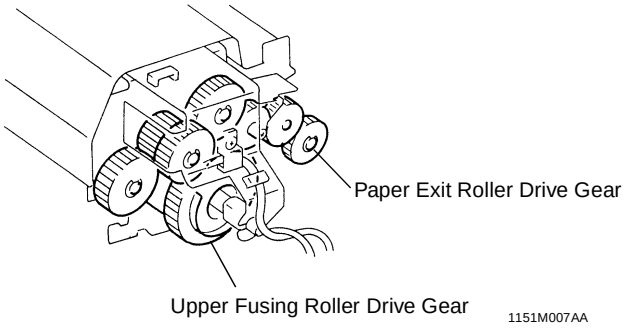
	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M9	PWB-A PJ9A-2	L	H	24-B
M3	PWB-A PJ11A-6B	H	L	1-G

24 FUSING UNIT

The Upper Fusing Roller and Lower Fusing Roller together apply heat and pressure to the toner and paper to permanently fix the developed image to the paper.

Drive for the Upper Fusing Roller is transmitted from the Main Drive Motor to the Upper Fusing Roller Drive Gear. The Lower Fusing Roller and Cleaning Roller are driven by the respective Rollers in contact with them.





24-1. Fusing Temperature Control

The Upper Fusing Roller is heated by a Fusing Heater Lamp which is an AC halogen lamp. Fusing Thermistor 1 and 2 installed on the Upper Fusing Roller help keep the optimum fusing temperature.

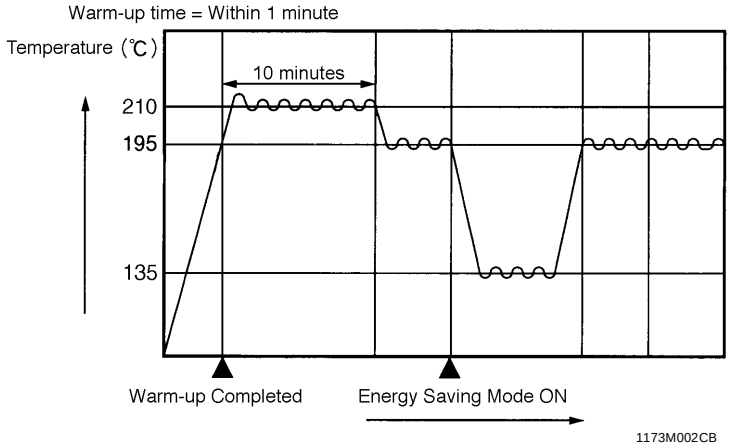
The fusing temperature is normally controlled at 195°C. To ensure good fusing performance, however, even when the Lower Fusing Roller remains cool immediately after warm-up in the early morning, the temperature is controlled as follows when the copier is turned ON:

Temperature is controlled at 210°C for 10 min. after the copier has completed warming up, which is followed by a temperature control at 195°C. If, however, a copy cycle is started while temperature is being controlled at 210°C, the temperature control at 195°C is started 1 min. after the completion of the warm-up cycle. If this 1-min. period has already elapsed when the copy cycle is started, the copier immediately starts the temperature control at 195°C.

Fusing Thermistor 1 is positioned at a point 84 mm from the paper path reference position, thereby preventing offset caused by low temperature and degraded fusing performance for small-size paper.

The control temperature in the Energy Saving Mode is 135°C.

Fusing Thermoswitch, installed above the Upper Fusing Roller, cuts off the power to the Fusing Unit if the temperature of the Upper Fusing Roller becomes excessively high. It eliminates the possibility of a fire that could occur when the Fusing Heater Lamp remains ON due to a faulty temperature control circuit.



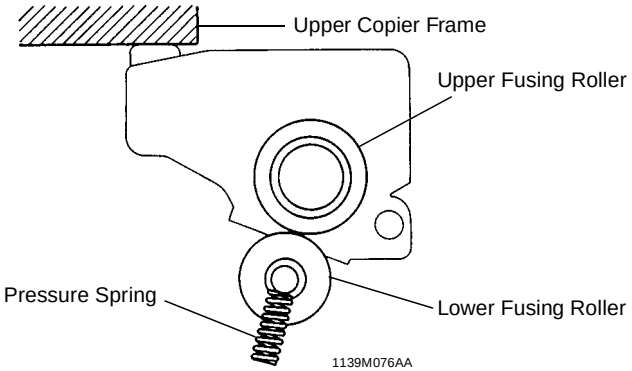
<Fusing Temperature Control During Continuous Small-Size Paper Feeding>
When a number of sheets of small-size paper are fed through the copier continuously, the temperature of the rear end of the Fusing Rollers tends to rise, resulting in high-temperature offset occurring. Fusing Thermistor is installed at a location 278.5 mm from the position of paper passage registration. As soon as Fusing Thermistor 2 detects 225°C, the 225°C control by Fusing Thermistor 2 is started.

1173SBM2402A

24-2. Fusing Rollers Pressure Mechanism

Pressure Springs are installed at both ends of the Lower Fusing Roller. These springs contact the bearings mounted on both ends of the Lower Fusing Roller and exert pressure through the Lower Fusing Roller to the Upper Fusing Roller which is installed in the Fusing Unit.

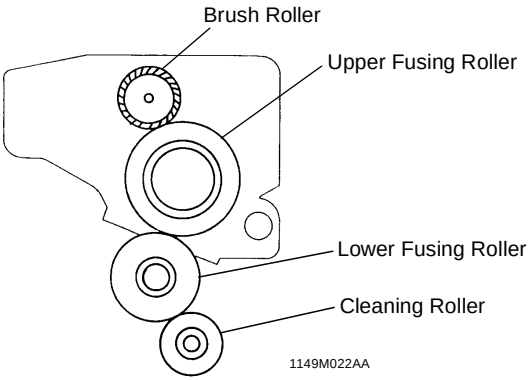
The Fusing Unit is divided into an upper and a lower half, and the upper half can be swung open. The Upper Half of the copier, when locked in position, presses the upper half of the Fusing Unit down onto its lower half.



1173SBM2403A

24-3. Brush Roller/Cleaning Roller

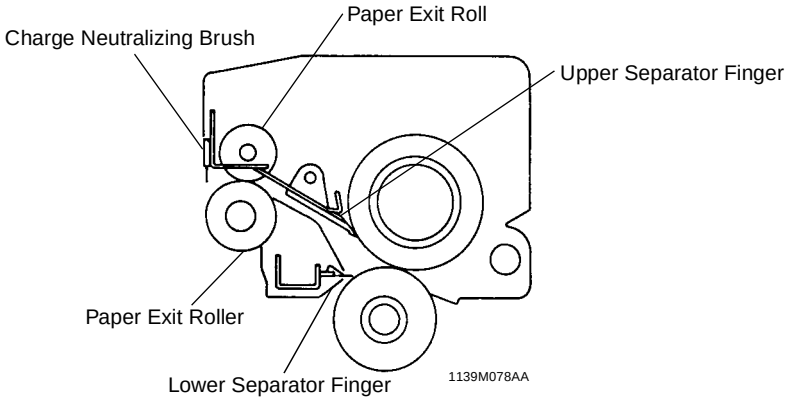
- The Brush Roller is pressed up against the Upper Fusing Roller. It turns in the direction opposite that of the Upper Fusing Roller and, with its brush, removes toner and paper dust.
- The Cleaning Roller is made up of an aluminum cylinder around which a high temperature resistant paper based material is wound. As well as serving to clean the surface of the Upper and Lower Fusing Rollers, the Cleaning Roller also ensures that the temperature along the entire length of the Fusing Rollers does not rise excessively when, for example, continuously feeding small size paper.



1173SBM2500A

25 EXIT UNIT

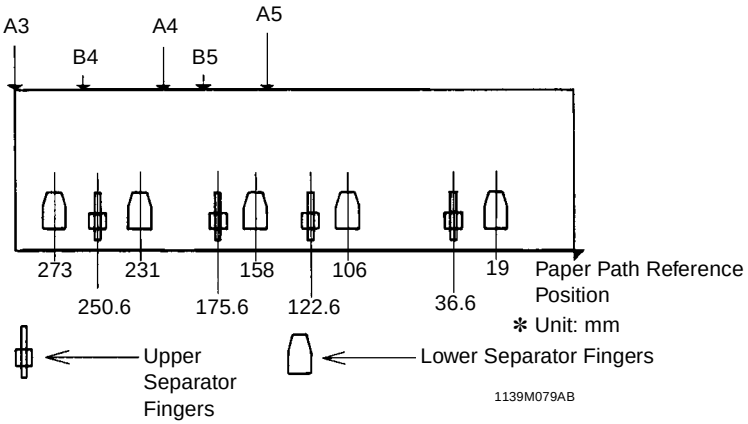
The Paper Exit Roller/Rolls feed the paper, to which the developed image has been fixed, out of the Fusing Unit to the Exit/Duplex Switching Unit. The Charge Neutralizing Brush touches the surface of the sheet of paper being fed out of the Fusing Unit to neutralize any static charge left on it. The Upper and Lower Separator Fingers strip the paper from the surface of the Upper/Lower Fusing Roller.



1173SBM2501A

25-1. Upper/Lower Separator Fingers

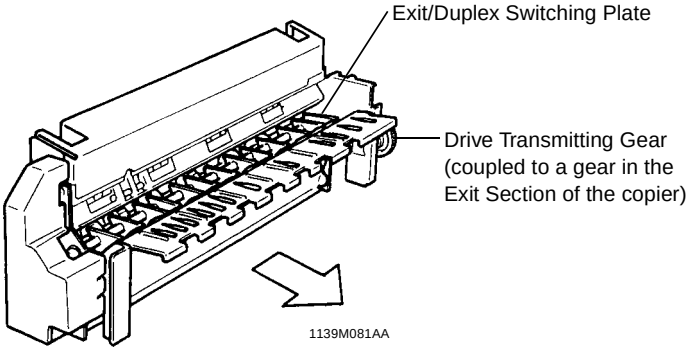
The Upper and Lower Separator Fingers are laid out as shown below to cope with many different paper sizes.



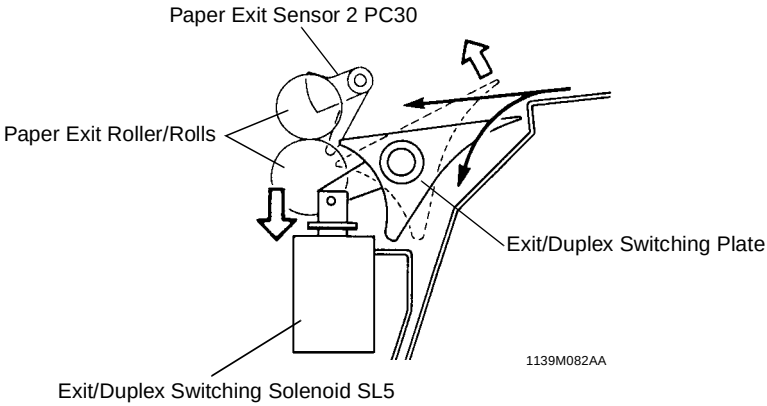
26 EXIT/DUPLEX SWITCHING UNIT

The Exit/Duplex Switching Unit has the following functions:

- Transmits the copier drive to the Sorter/Staple Sorter.
- Locks the Sorter/Staple Sorter in position.
- Selects the paper path, either to the exit or to the Duplex Unit, when the copier is equipped with a Duplex Unit.



The Master Board outputs a signal to energize the Exit/Duplex Switching Solenoid, which switches the position of the Exit/Duplex Switching Plate. The Unit has Paper Exit Sensor 2 built into it which detects a sheet of paper being fed out of the Unit. (For more details of switching control, see the Service Manual for “DUPLEXING UNIT”).



	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC30	PWB-A PJ9A-8	L	H	2-D

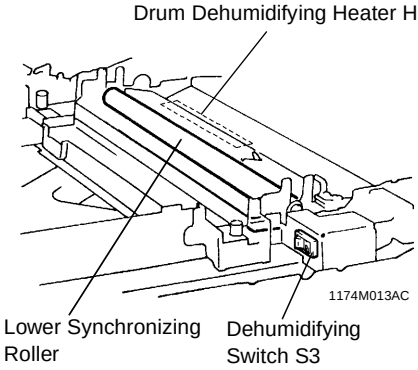
	Control Signal	Energized	Deenergized	WIRING DIAGRAM
SL5	PWB-A PJ9A-10	L	H	2-D

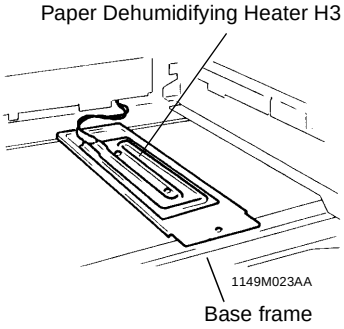
1173SBM2700A

27 DEHUMIDIFYING SWITCH (OPTION)

To prevent image transfer efficiency from being reduced due to damp paper in highly humid weather, Paper Dehumidifying Heater is installed on the base frame of the copier under the 2nd Drawer.

A Drum Dehumidifying Heater is located under the Lower Synchronizing Roller to prevent the PC Drum from forming condensation.





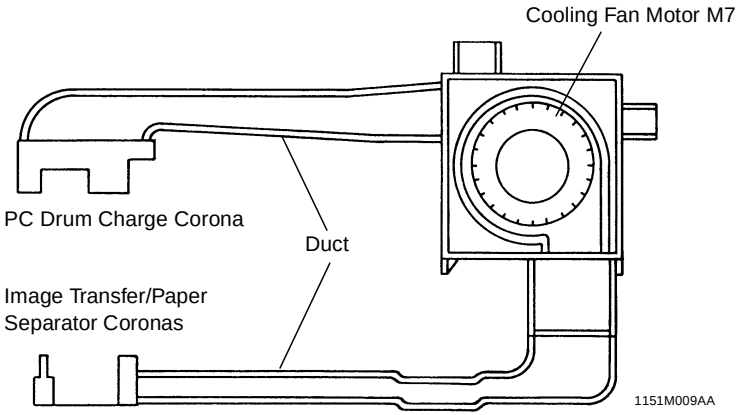
- Drum Dehumidifying Heater, Paper Dehumidifying Heater ON/OFF Conditions

	Dehumidifying Switch ON		
	Power cord Plugged in	Power Switch ON	During a copy cycle
H2	ON	ON	OFF
H3	ON	ON	OFF

28 COOLING FAN

Ozone produced by the PC Drum Charge Corona and Image Transfer/Paper Separator Coronas is drawn out of the copier by the Cooling Fan Motor and absorbed by the Ozone Filter.

The Cooling Fan Motor is turned either at high or low speed. It turns at high speed while Main Drive Motor or PC Drive Motor is being energized. It also turns at high speed for a period of time after the Main Relay has been turned ON. Otherwise, it turns at low speed at all times.



	Control Signal	High	Low	WIRING DIAGRAM
M7	PWB-A PJ11A-1A	H	L	8-A

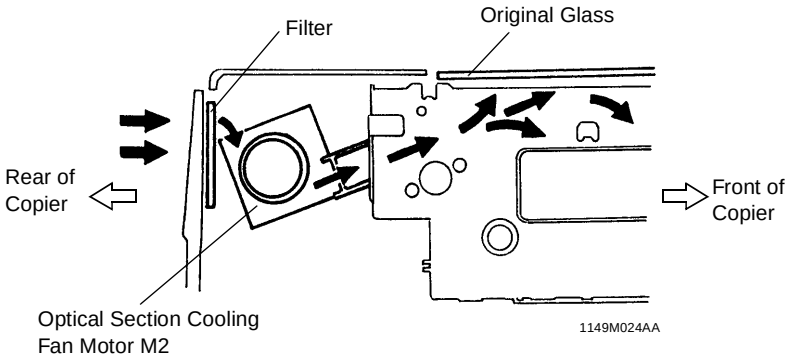
1173SBM2900A

29 OPTICAL SECTION COOLING FAN

The Optical Section Cooling Fan Motor draws outside air into the copier and blows it against the Original Glass which is heated by the lit Exposure Lamp.

The Filter at the intake port of the Fan prevents dust and dirt from entering the Optical Section of the copier.

The Optical Section Cooling Fan Motor turns only while Main Drive Motor or PC Drive Motor is being energized.



	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M2	PWB-A PJ11A-4A	H	L	8-A

30 MEMORY BACKUP

IC1 (RAM) of the RAM Board connected to the Master Board stores the setting/adjustment values set in the Tech. Rep. Modes as well as the counter counts. The Backup Battery is mounted on the RAM Board to prevent the contents of memory from being lost when the power cord is unplugged or the RAM Board removed from the copier. Backup Battery requires a voltage of 2V or more to retain the contents of memory.

Important

As noted above, the RAM stores critical data. If the RAM Board has been replaced with a new one, memory must first be cleared and then all settings be made again. It should also be noted that the RAM Board should not be replaced at the same time when the Master Board is replaced.

EP3010

SWITCHES ON PWBs/ TECH. REP. SETTINGS

MINOLTA

17196

CONTENTS

1. PRECAUTIONS FOR HANDLING THE PWBs S-1
   1-1. Precautions for Transportation and Storage S-1
   1-2. Precautions for Replacement and Inspection S-1
2. CONTROL PANEL KEYS AND TOUCH PANEL S-2
   2-1. Control Panel Keys S-2
   2-2. Explanation of the Touch Panel S-3
      (1) Basic Screen S-3
      (2) Warning Screens S-4
3. FUNCTIONS OF SWITCHES AND POINTS ON PWB S-5
   3-1. PWB Location S-5
   3-2. Master Board PWB-A S-5
4. USER'S CHOICE MODE S-7
   4-1. User's Choice Selection Screen S-7
   4-2. User's Choice Function Setting Procedure S-7
   4-3. User's Choice Function Tree S-8
   4-4. Settings in the User's Choice S-9
5. TECH. REP. MODE S-16
   5-1. Tech. Rep. Mode Menu Screen S-16
   5-2. Tech. Rep. Mode Function Setting Procedure S-16
   5-3. Tech. Rep. Mode Function Tree S-17
   5-4. Settings in the Tech. Rep. Mode S-19
      (1) Function S-19
      (2) Tech. Rep. Choice S-20
      (3) System Input S-23
      (4) Counter S-24
      (5) I/O Check S-31
      (6) ROM Version S-32
      (7) RD Mode S-33
      (8) Accessory Test S-35
      (9) Level History S-37
      (10) Machine Status S-38
      (11) Admin. Mode S-38
6. SECURITY MODE S-39
   6-1. Security Mode Setting Procedure S-39
   6-2. Security Mode Function Tree S-40
   6-3. Setting in the Security Mode S-40
7. FACTORY SETTING S-43
   7-1. Factory Setting Menu Screen S-43
   7-2. Factory Setting Function Setting Procedure S-43
   7-3. Factory Setting Function Tree S-44
      (1) Function S-44
      (2) Adjust S-46

31 PRECAUTIONS FOR HANDLING THE PWBs

31-1. Precautions for Transportation and Storage

A. Before transporting or storing the PWBs, put them in protective conductive cases or bags so that they are not subjected to high temperature (and they are not exposed to direct sunlight).
B. Protect the PWBs from any external force so that they are not bent or damaged.
C. Once the PWB has been removed from its conductive case or bag, never place it directly on an object that is easily charged with static electricity (such as a carpet or plastic bag).
D. Do not touch the parts and printed patterns on the PWBs with bare hands.

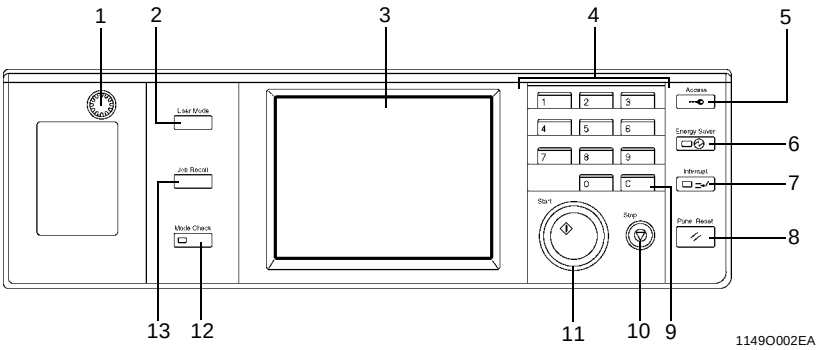
31-2. Precautions for Replacement and Inspection

A. Whenever replacing the PWB, make sure that the power cord of the copier has been unplugged.
B. When the power is on, the connectors must not be plugged in or unplugged.
C. Use care not to strap the pins of an IC with a metal tool.
D. When touching the PWB, wear a wrist strap and connect its cord to a securely grounded place whenever possible. If you cannot wear a wrist strap, touch the metal part to discharge static electricity before touching the PWB.

32 CONTROL PANEL KEYS AND TOUCH PANEL

✻ For more details, see the “Operator’s Manual” shipped with the copier.

32-1. Control Panel Keys



1. Display Contrast Knob
- Varies the brightness of the Touch Panel.

2. User Mode Key
- Changes the screen to the User Mode setting screen.

3. Touch Panel
- Shows various screens and messages.

4. 10-Key Pad
- Numeric keypad used for entering the number of copies to be made, zoom ratio, access number, and the Tech. Rep. mode settings.

5. Access Mode Key
- When either “100 Accounts” or “1000 Accounts” has been selected for the “Copy Track” function, the entry of the access number and the press of this key (Access Mode) will allow the user to make copies.

6. Energy Saver Key
- Sets the copier into the Energy Saver mode.

7. Interrupt Key
- Sets the copier into, or lets it leave, the Interrupt mode.

8. Panel Reset Key
- Clears all control panel settings made previously, initializing the copier.

NOTE

It does not, however, clear the contents of the zoom and job program memory and the settings made immediately before the Interrupt mode.

9. Clear Key
- Clears the number-of-copies setting, zoom ratio, and counter count.

10. Stop Key
- Stops a copy cycle.

11. Start Key
- Starts a copy cycle.

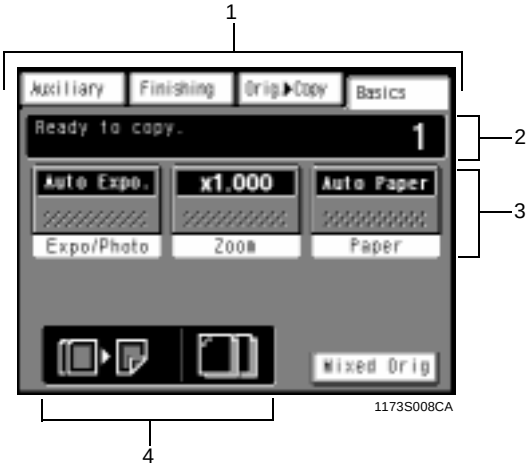
12. Mode Check Key
- Shows the Mode Check screen on which the user can check the current copying settings.

13. Job Recall Key
- Selects the Job Recall screen which allows the user to recall or check a copy-job program previously stored in memory.

32-2. Explanation of the Touch Panel

(1) Basic Screen

- The Basic screen is an initial screen that appears when the copier is turned ON, panel is reset, or when auto clear is activated.



1. Supplementary Function Keys
- Selects the corresponding menu screen, either Auxiliary, Finishing, or Orig. ▶ Copy.

2. Message Display
- Shows the current copier status, operating instructions, and other data including the number of copies selected and the amount of paper still available for use.

3. Basic Function Keys
- Allows the user to select the exposure level, zoom ratio, and copy paper.

4. Function Display
- Shows graphic representations of the settings currently made for Orig. ▶ Copy and Finishing.

(2) Warning Screens

- The warning screen may be a malfunction display, error display, warning display, or a caution display.

<Malfunction Display>

- A malfunction display is given when trouble occurs which cannot be corrected by the user.

Example

Malfunction that can be identified with a specific code.

1149O421CA

<Error Display>

- An error display is given when trouble occurs which can be corrected by the user.

Example

Paper misfeed, toner empty, door open.

1149O387CA

<Warning Display>

- A warning display is given when any further copier operation will not be possible, or only faulty results will come out, due to erroneous panel settings or other cause.

Example

Unmatched paper size in Auto Paper.

1149O422CA

<Caution Display>

- A caution display is given when, though further copier operation will be possible, it could result in a malfunction.

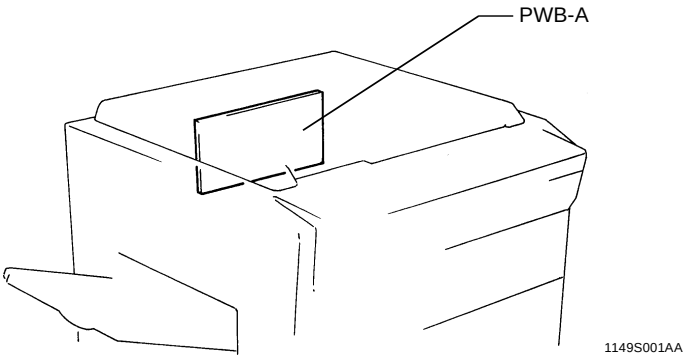
Example

Toner empty.

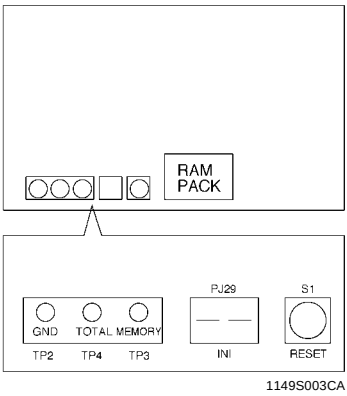
1173S009CA

33 FUNCTIONS OF SWITCHES AND POINTS ON PWB

33-1. PWB Location



33-2. Master Board PWB-A



Symbol	Name	Description
S1	Trouble Reset Switch	Resets a malfunction including those of the Exposure Lamp (C04XX) and fusing (C05XX).
PJ29	Initialize Switch	Forcibly resets a misfeed or malfunction that occurred due to incorrect operation, etc. when it cannot be reset by opening and closing the Front Door or the press of S1.
TP2	GND Test Point	Ground terminal used for memory clear.
TP3	Memory Clear Test Point	Initializes all data except the counts of electronic counters, access numbers and administrator number for Copy Track, and RD mode functions.

<Clearing Procedures>

- Initialize Points PJ29

1. Turn OFF the Power Switch.
2. With PJ29 closed, turn ON the Power Switch.
3. In approx. 5 sec. open PJ29.
4. Check that the message “Initialize completed” is shown on the Touch Panel, then touch “OK.”

- Memory Clear Test Point TP3

1. Turn OFF the Power Switch.
2. With the circuit across TP2 and 3 closed, turn ON the Power Switch.
3. In approx. 5 sec. open the circuit across TP2 and 3.
4. Check that the message “Memory Clear completed” is shown on the Touch Panel, then touch “OK.”

NOTE

- *If an erratic operation or display occurs, perform the clearing procedures in the order of PJ29 and TP3.*
- *When memory clear has been performed, make the necessary settings again.*

<List of Data Cleared by Switches and Points>

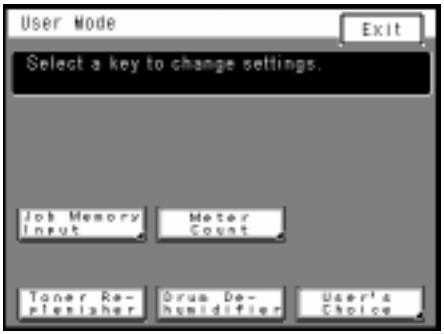
Clearing Method / Data Cleared	Front Door Open/Close	Trouble Reset Switch (S1)	Initialize Switch (PJ29)	Memory Clear Test Point (TP3)
Misfeed display	❍	❍	❍	❍
Malfunction display (except Exposure Lamp and fusing system)	❍	❍	❍	❍
Malfunction display (all including Exposure Lamp and fusing system)	–	❍	❍	❍
Erratic operation/display	–	–	❍	❍
User mode	–	–	–	❍
Service mode	–	–	–	❍
F5/F7 setting values	–	–	–	❍
System Input	–	–	–	❍
Accessory Test	–	–	–	❍
Level History	–	–	–	❍
Adjust mode	–	–	–	❍

❍ : Cleared (initialized) – : Not cleared:

34 USER'S CHOICE MODE

- The User's Choice mode available from the User Mode menu is used to make various settings according to the user's needs.

34-1. User's Choice Selection Screen



1173S001CB

34-2. User's Choice Function Setting Procedure

<Setting Procedure>

1. Press the User Mode key on the control panel and then touch the [User's Choice] key.
2. Select the page number key that contains the desired function from among 1/6 through 6/6 shown at the bottom of the Touch Panel.
3. Select the function to be set and make settings as required.
4. After the settings are complete, touch the [Enter] key to validate the settings.

NOTE

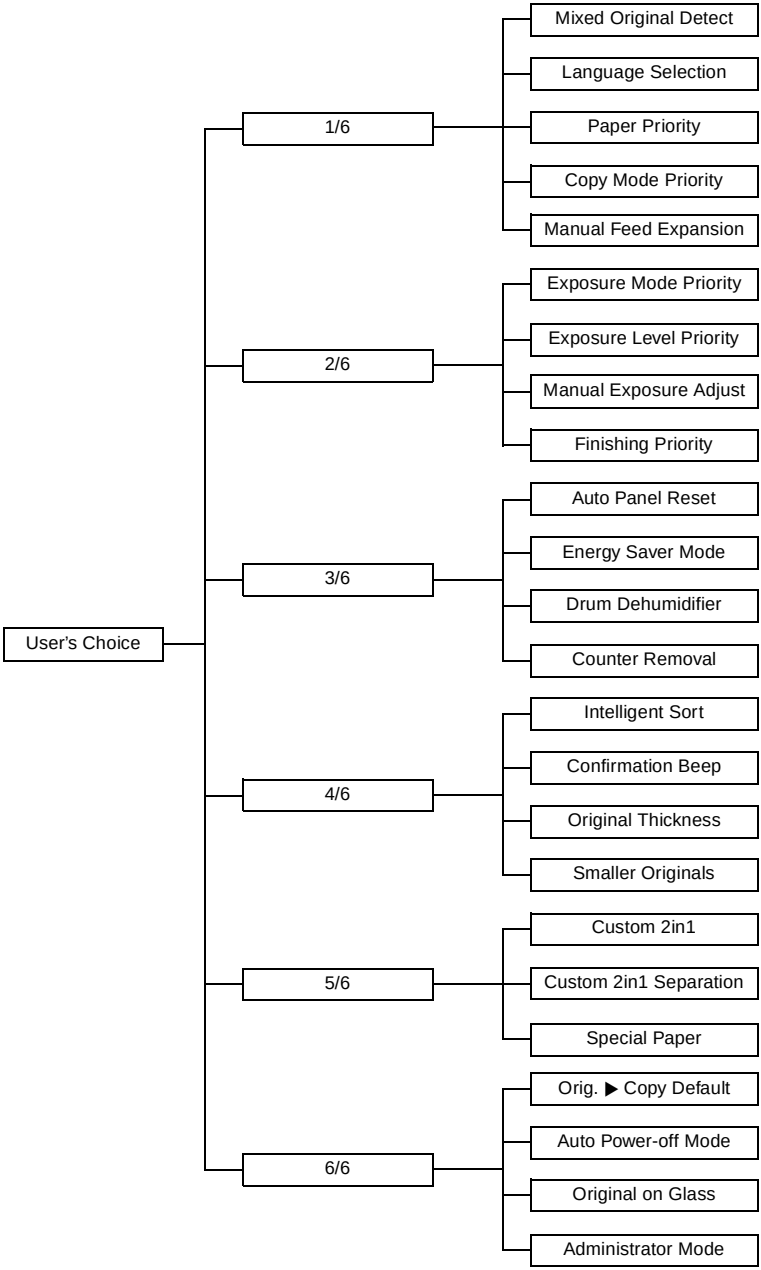
The function selected is highlighted.

<Exiting the Mode>

Perform any one of the following steps to go back to the Basic screen.

- Press the Panel Reset key on the control panel.
- Touch [Exit] on the Touch Panel.

34-3. User's Choice Function Tree



34-4. Settings in the User's Choice

[1/6]

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>Mixed Original Detection</td><td>Select whether to enable (“ON”) the Mixed Original Detection mode or not (“OFF”) when power is turned ON or the Panel Reset key pressed.
<table><tr><td>ON</td><td>OFF</td></tr></table></td></tr>
<tr><td>Language Selection</td><td>Select the language of the Touch Panel messages.
-Metric Areas-
<table><tr><td>English</td><td>German</td><td>French</td></tr><tr><td>Dutch</td><td>Italian</td><td>Spanish</td></tr><tr><td>Portuguese</td><td>Danish</td><td>Norwe-gian</td></tr><tr><td>English</td><td>Finnish</td><td>Greek</td></tr></table>-Inch Areas-
<table><tr><td>English</td><td>French</td><td>Spanish</td></tr><tr><td>Japanese</td><td>Chi-nese</td><td>Portuguese</td></tr></table></td></tr>
<tr><td>Paper Priority</td><td>Specify the paper source selected automatically.
<table><tr><td>1st Drawer</td></tr><tr><td>2nd Drawer</td></tr><tr><td>3rd Drawer</td></tr><tr><td>4th Drawer</td></tr></table></td></tr>
<tr><td>Copy Mode Priority</td><td>Specify the default mode selected automatically when power is turned ON or the Panel Reset key pressed.
<table><tr><td>Auto Paper</td><td>Auto Size</td><td>Manual</td></tr></table></td></tr>
<tr><td>Manual Feed Expansion</td><td>Select whether to use Manual feed expansion (“ON”) when using the Multi Bypass Tray or not (“OFF”).
<table><tr><td>ON</td><td>OFF</td></tr></table></td></tr>
</table>

<table>
<tr><td>Touch Panel Display</td><td>Setting (The default is Highlighted.)</td></tr>
<tr><td>Exposure Mode Priority</td><td>Specify the default exposure mode selected automatically when power is turned ON or the Panel Reset key pressed.
Auto | Manual</td></tr>
<tr><td>Exposure Level Priority</td><td>Auto: Select the default exposure level in the Auto Exposure mode.
Manual: Set the default exposure level in the Manual Exposure mode.
<Auto Exposure>
Lighter | Normal | Darker
<Manual Exposure>

Lighter | Normal | Darker
NOTE
EXP. 1 (Lighter) to EXP. 9 (Darker)</td></tr>
<tr><td>Manual Exposure Adjust</td><td>Determine the default voltage curve (EXP. level) in the Manual Exposure mode, as optimized by the type of original.
Mode 1 Halftone images, photos
Mode 2 Ordinary originals
Mode 3 Originals with a colored background or faint texts
<Manual Exposure Voltages in Different Modes>
Manual Exposure Voltage (V)
EXP. 1 2 3 4 5 6 7 8 9
Mode 1 +5 +5 +2 +1 0 –1 –2 –5 –8
Mode 2 +5 +5 +4 +2 0 –2 –4 –6 –8
Mode 3 +5 +5 +5 +3 0 –3 –6 –7 –8
NOTE
EXP. 5 uses as reference the voltage value automatically adjusted by the F5 operation.</td></tr>
<tr><td>Finishing Priority</td><td>Select the default finishing type when the copier is equipped with a Sorter or Staple Sorter.
Non Sort | Group
Sort | Sort Staple
+ Hole Punch
NOTE
Hole Punch can be combined with any one of the left functions.</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>Auto Panel Reset</td><td>Specify the default exposure mode selected automatically when power is turned ON or the Panel Reset key pressed.
<table>
<tr><td>30 sec.</td><td>1 min.</td><td>2 min.</td></tr>
<tr><td>3 min.</td><td>5 min.</td><td>No Reset</td></tr>
</table></td></tr>
<tr><td>Energy Saver Mode</td><td>Set the time it takes the copier to enter the Energy Saver mode after a copy cycle has been completed or the last key operated. Use the 10-Key Pad to set the time (1 to 240 min.).
<table>
<tr><td>1 to 240 (15 min.)</td><td>OFF</td></tr>
</table>
NOTE
For European areas only, the OFF setting.</td></tr>
<tr><td>Drum Dehumidifier</td><td>Select whether to allow the copier to enter the Drum Dehumidifier mode automatically after it has been turned ON, or not.
<table>
<tr><td>ON</td><td>OFF</td></tr>
</table></td></tr>
<tr><td>Counter Removal</td><td>Select whether to reset the panel or not when the Plug-In Counter is pulled out of the copier, a magnetic card is pulled out of the Data Controller, or the Access Mode key is pressed.
<table>
<tr><td>ON</td><td>OFF</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>Intelligent Sort</td><td>Select whether to turn “ON” or “OFF” the function that automatically switches between Sort and Non-Sort according to the number of originals loaded in the document feeder.
ON | OFF

NOTE
This function is enabled when “Mixed Orig. Detection” is turned “OFF” and the copier is in the Auto Paper or Auto Size mode.</td></tr>
<tr><td>Confirmation Beep</td><td>Select whether to turn “ON” or “OFF” the beep that sounds each time a key on the control panel is pressed or that on the Touch Panel is touched.
ON | OFF</td></tr>
<tr><td>Original Thickness</td><td>Select whether to allow (“Thin”) the user to make copies from thin originals in addition to the standard ones or not (“Standard”) using the document feeder.
<table><tr><th>Standard</th><th>Thin</th></tr><tr><td>The original is pressed against the Original Width Scale when stopped.</td><td>The original is <u>not</u> pressed against the Original Width Scale when stopped.</td></tr></table></td></tr>
<tr><td>Smaller Originals</td><td>Select whether to enable (“ON”) a copy cycle or not (“OFF”) when it is initiated by pressing the Start key with an original of the smallest detectable size (metric areas: A5 or smaller; inch areas: Letter or smaller) placed on the Original Glass.
<table><tr><th>ON</th><th>OFF</th></tr><tr><td>The copy cycle is run using the paper loaded in the default paper source.</td><td>A warning message is given and the copier inhibits the start of this copy cycle.</td></tr></table>
NOTE
The default setting is OFF for the metric areas and ON for the inch areas.</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>Custom 2in1</td><td>Make the settings of “Paper,” “Zoom,” “Margin,” and “Erase” that are automatically recalled when the 2-in-1 copy is selected.
<table>
<tr><th>Function</th><th>Description</th><th>Initial Setting</th></tr>
<tr><td>Paper</td><td>Auto Paper, sizes of paper loaded in drawers</td><td>Auto Paper</td></tr>
<tr><td>Zoom</td><td>Auto Size, fixed zoom ratios</td><td>Metric areas: ×0.707
Inch areas: ×0.647</td></tr>
</table></td></tr>
<tr><td>Custom 2in1 Separation</td><td>Make the settings of “Paper,” “Zoom,” “Margin,” and “Erase” that are automatically recalled when the 2-in-1 separation copy is selected.
<table>
<tr><th>Function</th><th>Description</th><th>Initial Setting</th></tr>
<tr><td>Paper</td><td>Auto Paper, sizes of paper loaded in drawers</td><td>-Metric areas-
Auto Paper
-Inch areas-
1st Drawer</td></tr>
<tr><td>Zoom</td><td>Auto Size, fixed zoom ratios</td><td>Metric areas: ×1.414
Inch areas: ×1.294</td></tr>
</table></td></tr>
<tr><td>Special Paper</td><td>Set up a drawer for special paper loading.
<table>
<tr><td>Normal</td><td>Insert Sheet</td></tr>
<tr><td>Recycled</td><td>Not for 2-Sided</td></tr>
</table>
Initial setting: Normal (for all drawers)
<table>
<tr><th>Type of Paper</th><th>Auto Paper</th><th>Automatic Drawer Switching (only of paper of the same type)</th></tr>
<tr><td>Normal</td><td>❍</td><td>❍</td></tr>
<tr><td>Recycled</td><td>❍ NOTE 1</td><td>❍</td></tr>
<tr><td>Insert Sheet</td><td>–</td><td>–</td></tr>
<tr><td>Not for 2-Sided</td><td>❍ NOTE 2</td><td>❍ NOTE 2</td></tr>
</table>
❍: Enabled –: Disabled
NOTE

A warning display is given and the copy cycle is started by the press of the Start key.
Enabled only in the 1-sided copying mode.
</td></tr>
</table>

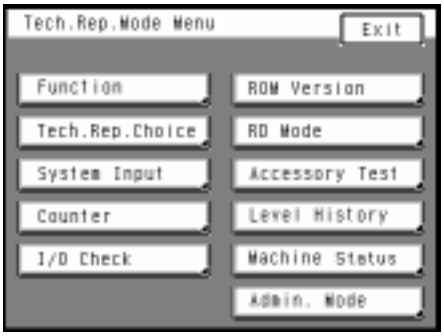
<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>Orig. ▶ Copy Default</td><td>Select the type of Orig. ▶ Copy setting selected automatically when the copier is turned ON or Panel Reset key pressed. If “Duplex only” is selected for “Simplex/Duplex” of the “Tech. Rep. Choice” function, neither 1 ▶ 1 nor 1 ▶ 2in1 are displayed.
<table><tr><td>1 ▶ 1</td><td>1 ▶ 2 in1</td><td></td></tr><tr><td>1 ▶ 2</td><td>1 ▶ 2-2 in1</td><td>2 ▶ 2</td></tr></table>NOTE
Some of the functions may not be displayed depending on the type of options the copier is equipped with.</td></tr>
<tr><td>Auto Power-off Mode</td><td>Select whether to turn ON or OFF the Auto Shut Off function that shuts down the copier a given period of time after a copy cycle has been completed or the last key operated.
Selecting “ON” means setting the time it takes the Auto Shut Off function to be activated, that can range from 1 min. to 240 min.
<table><tr><td>OFF</td><td>1 to 240 (60 min.)</td></tr></table>NOTE
“OFF” is displayed when “Enable” is selected for “Non-Auto Shut off” of the “Administrator Mode” function.</td></tr>
<tr><td>Original on Glass</td><td>Select whether to turn “ON” or “OFF” the beep that sounds when you attempt to load an original in the document feeder with another one left on the glass.
<table><tr><td>Beep ON</td><td>Beep OFF</td></tr></table></td></tr>
<tr><td>Administrator Mode</td><td>The entry of the “Administrator #” set using the Tech. Rep. mode permits the settings of the following functions.</td></tr>
<tr><td>Copy Track Mode</td><td>Select the number of accounts to be controlled.
<table><tr><td>OFF</td><td>100 Accounts</td><td>1000 Accounts</td></tr></table></td></tr>
<tr><td>Copy Track Mode</td><td>This function is displayed when the above “Copy Track” is changed, prompting you to select whether to initialize (“YES”) the copy track data so far taken or not (“NO”).
<table><tr><td>YES (initialized)</td><td>NO (not initialized)</td></tr></table></td></tr>
<tr><td>Copy Track Data</td><td>When “Count Reset” is touched, it clears all data under control.</td></tr>
</table>

Touch Panel Display	Setting (The default is **Highlighted**.)
1/25 . . . 22/25	<100 Accounts> The copy track data of the selected page is displayed (Account No., Total Counter, Size Counter, Limit, ID). "Count Reset": Clears the total and size counters of all accounts. "No." : Enter the set account number from the 10-Key Pad. "Total" : Displays the count of the Total Counter. (It can also be cleared with the Clear key.) "Size" : Displays the count of the Size Counter. (It can also be cleared with the Clear key.) "Limit" : Enter the maximum number of copies that can be made from the 10-Key Pad. "ID #" : Enter the access number (0001 to 9999) from the 10-Key Pad.
1~ . . . 901~	<100 Accounts> The copy track data of the selected page is displayed. "Count Reset" : Clears the total counters of all accounts. "Total" : Displays the count of the Total Counter. (It can also be cleared with the Clear key.) ***NOTE*** *The entry of an access number is not possible, 1 to 1000 corresponding to the ID numbers.*
Maximum Copy Sets	Determine the number of copies or copy sets that can be set using the 10-Key Pad. Initial setting: **OFF**
Disable Auto Shut off	Select whether to enable or disable the Auto Power-off Mode setting available from User's Choice. NO – "OFF" key is not displayed. **YES** – "OFF" key is displayed.
User Help ✻ : Displayed when a DT-103 is mounted.	<Transmission Procedure> 1. Using the " ▼ or ▲ " key, select the user claim number and then, from the 10-Key Pad, enter the 3-digit user claim code (up to six entries are possible). 2. Touch "Data Send" to start the transmission.

35 TECH. REP. MODE

- This mode is used by the Tech. Rep. to set, check, adjust, and/or program various service functions.

35-1. Tech. Rep. Mode Menu Screen



1173S002CA

35-2. Tech. Rep. Mode Function Setting Procedure

<Setting Procedure>

1. With the Meter Count screen opened from User Mode, press the flowing keys in this order.

Stop key → 0 → 0 → Stop key → 0 → 1

2. Select the particular Tech. Rep. mode function to be set.
3. Make the necessary settings by following the instructions given sequentially on the screen.

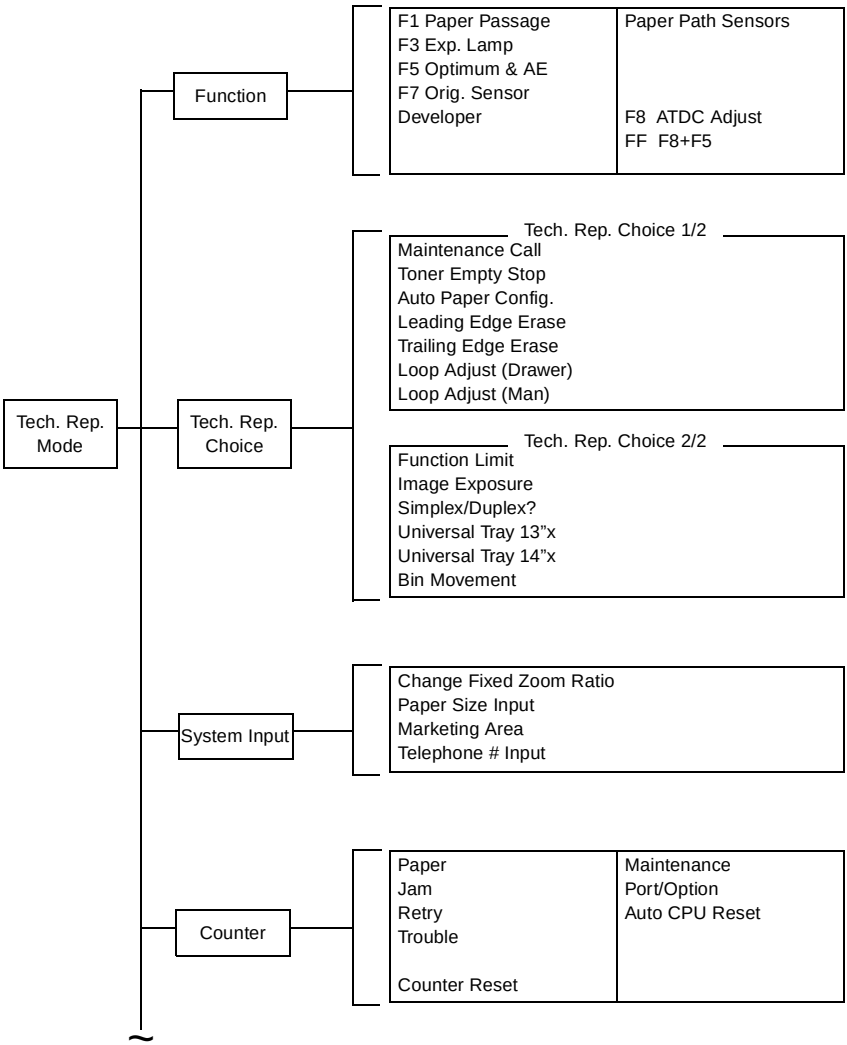
NOTE

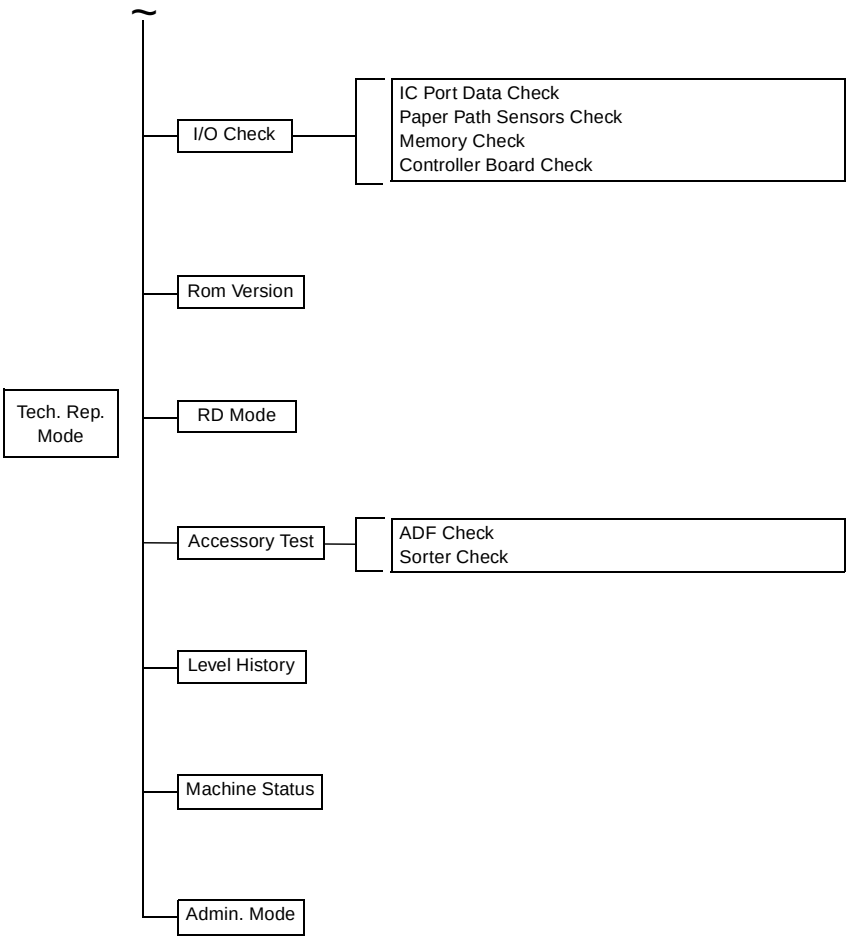
The function selected is highlighted.

<Exiting the Mode>

- Press the Panel Reset key on the control panel.
- Touch “Exit” on the Touch Panel.

35-3. Tech. Rep. Mode Function Tree




Tech. Rep. Mode
I/O Check
IC Port Data Check
Paper Path Sensors Check
Memory Check
Controller Board Check
Rom Version
RD Mode
Accessory Test
ADF Check
Sorter Check
Level History
Machine Status
Admin. Mode

35-4. Settings in the Tech. Rep. Mode

(1) Function

- This function allows the Tech. Rep. to make the various functional tests and adjustments.

<Setting Procedure>
1. Select the particular function to be run.
2. Press the Start key to start the test.
3. Press the Stop key to stop the test.

[Tech. Rep. Mode ▶ Function]

Touch Panel Display	Operation
F1 Paper Passage	A paper passage test is carried out to check for correct sensor operation without having to wait for the copier to complete warming up. <Procedure> 1. Select the paper source from which to feed paper and touch "Paper Path Sensors." 2. Press the Start key. This starts a paper take-up and feeding sequence and the copier shows "1" or "0" depending on the condition of each sensor. ***NOTE*** *Pressing the Stop key causes the copier to feed the paper out of it and stop operating; another press of the Start key will resume the paper take-up and feeding sequence.*
F3 Exp. Lamp	Checks to see if the Exposure Lamp lights up properly. (It runs for 30 sec.)
F5 Optimum & AE	Makes the following automatic adjustments: Vg level, Manual exposure level and AE Sensor optimum exposure level. (It runs for 30 sec.) <Procedure> 1. Touching "F5" automatically brings you to the next screen (AE level adjustment screen). 2. Using the ◀ or ▶ key, show the desired number (40 to 60) and press the Start key. This starts the automatic adjustment sequence. 3. Touch "Test Copy" to check for image.
F7 Orig. Sensor	Makes an automatic adjustment of the Original Size Detecting Sensors.
Developer	When "Developer" is pressed, "F8" and "FF" functions are displayed and disappear when the corresponding operation has been completed.
F8 ATDC Adjust	Runs the Developing Unit to agitate developer and makes an automatic adjustment of the ATDC Sensor level. (It runs for 5 min.)
FF F8 + F5	Runs the F8 and F5 operations.

(2) Tech. Rep. Choice

- This function allows the Tech. Rep. to make various settings and adjustments.

[Tech. Rep. Mode ▶ Tech. Rep. Choice]

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>Maintenance Call</td><td>Select whether to enable or disable the maintenance call reminder message that is displayed when the maintenance counter count reaches the preset value.
<table>
<tr><td>NO</td><td>YES</td></tr>
</table>
NOTE
Up to five maintenance counters may be set and the maintenance call reminder message is given when the count of any one of these five counters reaches the preset value, together with the display of maintenance code “M1.”</td></tr>
<tr><td>Toner Empty Stop</td><td>Select whether or not to inhibit copying when a toner-empty condition is detected.
<table>
<tr><td>Enable Copy</td><td>Disable Copy</td></tr>
</table>
NOTE
When “Disable Copy” is selected, copying is inhibited when a T/C of 3.25% or less is detected.</td></tr>
<tr><td>Auto Paper Config.</td><td>Select either “Inch/Metric” or “Metric” for rounding of the original size detected.
<table>
<tr><td>Inch/Metric</td><td>The measurement is rounded to the nearest standard inch or metric size.</td></tr>
<tr><td>Metric</td><td>The measurement is rounded to the nearest standard metric size.</td></tr>
</table></td></tr>
</table>

[Tech. Rep. Mode ▶ Tech. Rep. Choice 1/2]

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>Leading Edge Erase</td><td>Select whether to enable (“Yes”) or disable (“No”) the leading edge erase.
<table><tr><td>NO</td><td>YES</td></tr></table></td></tr>
<tr><td>Trailing Edge Erase</td><td>Select whether to enable (“Yes”) or disable (“No”) the trailing edge erase.
<table><tr><td>NO</td><td>YES</td></tr></table></td></tr>
<tr><td>Loop Adjust (Drawer)</td><td>Adjust the length of the loop before the Synchronizing Rollers to be formed in paper fed from the copier drawer.
<table><tr><th>Display</th><th>Description</th><th>Display</th><th>Description</th></tr><tr><td>47</td><td>Loop length approx. 1 mm</td><td>51</td><td>Loop length approx. 9 mm</td></tr><tr><td>48</td><td>Loop length approx. 3 mm</td><td>52</td><td>Loop length approx. 11 mm</td></tr><tr><td>49</td><td>Loop length approx. 5 mm</td><td>53</td><td>Loop length approx. 13 mm</td></tr><tr><td>50</td><td>Loop length approx. 7 mm</td><td></td><td></td></tr></table></td></tr>
<tr><td>Loop Adjust (Man)</td><td>Adjust the length of the loop before the Synchronizing Rollers to be formed in paper fed via the Multi Bypass Tray or a paper feeder option.
<table><tr><th>Display</th><th>Description</th><th>Display</th><th>Description</th></tr><tr><td>47</td><td>Loop length approx. 1 mm</td><td>51</td><td>Loop length approx. 9 mm</td></tr><tr><td>48</td><td>Loop length approx. 3 mm</td><td>52</td><td>Loop length approx. 11 mm</td></tr><tr><td>49</td><td>Loop length approx. 5 mm</td><td>53</td><td>Loop length approx. 13 mm</td></tr><tr><td>50</td><td>Loop length approx. 7 mm</td><td></td><td></td></tr></table></td></tr>
</table>

[Tech. Rep. Mode ▶ Tech. Rep. Choice 2/2]

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>Function Limit</td><td>Select whether to limit (“ON”) the functions that can be set on the control panel or not (“OFF”).
<table>
<tr><td>ON</td><td>Functions that can be set are limited to the number of copies to be made, paper size, zoom ratio, and exposure level only.</td></tr>
<tr><td>OFF</td><td>All functions can be set.</td></tr>
</table></td></tr>
<tr><td>Image Exposure</td><td>Vary the Vg voltage to set the desired image density.
<table>
<tr><th>Display</th><th colspan="2">Description</th><th>Display</th><th colspan="2">Description</th></tr>
<tr><td>47</td><td>Vg</td><td>-90V</td><td>51</td><td>Vg</td><td>+30V</td></tr>
<tr><td>48</td><td>Vg</td><td>-60V</td><td>52</td><td>Vg</td><td>+60V</td></tr>
<tr><td>49</td><td>Vg</td><td>-30V</td><td>53</td><td>Vg</td><td>+90V</td></tr>
<tr><td>50</td><td>Vg</td><td>±0V</td><td>54</td><td>Vg</td><td>+120V</td></tr>
</table></td></tr>
<tr><td>Simplex/Duplex?</td><td>Select the copying mode types that can be set to be selected in “Orig. ▶ Copy Default” of User’s Choice.
<table>
<tr><td>Both</td><td>Permits selection of all copying modes.</td></tr>
<tr><td>Duplex only</td><td>Permits selection of 2-sided copying mode only.</td></tr>
</table></td></tr>
<tr><td>Universal Tray 13"x</td><td>Set the inch size of paper to be used in the Universal Tray.
<table>
<tr><td>8½”</td><td>8¼”</td><td>8"</td></tr>
</table></td></tr>
<tr><td>Universal Tray 14"x</td><td>Set the inch size of paper to be used in the Universal Tray.
<table>
<tr><td>8½”</td><td>8¼”</td></tr>
</table></td></tr>
<tr><td>Bin Movement</td><td>Select whether or not the Sort Bins will automatically move upward after the last copy is ejected into the Bins.
<table>
<tr><td>ON</td><td>After the last copy, the Sort Bins automatically move upward.</td></tr>
<tr><td>OFF</td><td>After the last copy, the Sort Bins do not move upward.</td></tr>
</table></td></tr>
</table>

(3) System Input

- This function allows the Tech. Rep. to change the fixed zoom ratios, set the paper size, define the marketing area, configure for the Key Counter, and input the telephone number.

[Tech. Rep. Mode ▶ Tech. Rep. Choice]

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Change Fixed Zoom Ratio</td><td>Change a fixed zoom ratio to a desired value in the range between X0.500 and X2.000.
<Procedure>
1. Select the fixed zoom ratio to be changed and clear the setting by pressing the Clear key.

NOTE
If a ratio is mistakenly cleared, pressing the Panel Reset key will recover the ratio.

2. Enter the new zoom ratio from the 10-Key Pad.
3. Touch “Enter” to validate the new setting.</td></tr>
<tr><td>Paper Size Input</td><td>Set the size of the paper used in each paper source.
<Procedure>
1. Select the paper source for which the paper size is to be set (on the Paper Size Input 1/2 screen).
2. Then, the Paper Size Input 2/2 screen appears. Using the ▲ or ▼ key, select the paper size.
3. Touch “Enter” to validate the paper size setting.</td></tr>
<tr><td>Marketing Area</td><td>Select the marketing area to set the Language and paper size and fixed zoom ratios.
<table><tr><td>MJ</td><td>MC</td><td>MH</td><td>Other Areas</td></tr></table>
NOTE
Be sure to initialize the copier after the marketing area has been selected.</td></tr>
<tr><td>Telephone # Input</td><td>Input the telephone number that will appear on the Touch Panel when a malfunction occurs in the copier.
<Procedure>
1. Enter the phone number (consisting of up to 19 digits) from the 10-Key Pad.
2. Touch “OK” to validate the phone number setting.</td></tr>
</table>

(4) Counter

- This function shows the counts of the various counters, thus aiding the Tech. Rep. in performing service jobs.

<Setting Procedure>
1. Select [Counter].
2. Select the desired counter function.
3. Clear or set the count according to the instructions given on the screen.

<Clearing All Counts of a Counter Type at Once>
1. Touch the [Counter Reset] key.
2. Select the type of counter to be cleared all at once.
3. Touch [Enter]. This clears all counts of the type of counter selected.

[Tech. Rep. Mode ▶ Counter]

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Paper</td><td>Shows the number of copies made on each paper size or type (S0: standard paper; S1: recycled paper; S2: special paper; S3: disabling 2-sided copying).

<Paper 1/2>
<table><tr><th colspan="2">Paper Size</th></tr><tr><td>A3</td><td>11 × 17</td></tr><tr><td>B4</td><td>11 × 14</td></tr><tr><td>A4</td><td>Legal</td></tr><tr><td>B5</td><td>Letter</td></tr><tr><td>A5</td><td>5½×8½</td></tr><tr><td></td><td>FLS</td></tr></table>
<Paper 2/2>
<table><tr><th>Paper Type</th></tr><tr><td>S0</td></tr><tr><td>S1</td></tr><tr><td>S2</td></tr><tr><td>S3</td></tr></table>
NOTE
For a paper size that can be loaded both lengthwise and crosswise, the count represents the sum of both. (Ex.: A4 lengthwise/crosswise)

<Clearing a Count>
Using the ▼ or ▲ key, highlight the count to be cleared, then press the Clear key.

NOTE
If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Jam</td><td>
Shows the number of misfeeds that have occurred in different parts of the copier system including MCBJ (system, copier only, ADF).

<Jam Counter 1/3>
<table>
<tr><th>Display</th><th>Description</th><th>Display</th><th>Description</th></tr>
<tr><td>MCBJ (System)</td><td>Misfeed occurrence rate of the entire system</td><td>1st Drawer</td><td>No. of misfeeds that occurred at the 1st Drawer of the copier</td></tr>
<tr><td>MCBJ (Machine Only)</td><td>Misfeed occurrence rate of the copier only</td><td>2nd Drawer</td><td>No. of misfeeds that occurred at the 2nd Drawer of the copier</td></tr>
<tr><td>MCBJ (ADF)</td><td>Misfeed occurrence rate of the ADF only</td><td>3rd Drawer</td><td>No. of misfeeds that occurred at the 3rd Drawer of the copier</td></tr>
<tr><td>Manual Feed</td><td>No. of misfeeds that occurred at the Multi Bypass Tray</td><td>4th Drawer</td><td>No. of misfeeds that occurred at the 4th Drawer of the copier</td></tr>
</table>

NOTE

1. MCBJ (System) : Total Counter value divided by the sum of Jam Counter values

MCBJ (Machine Only): Total Counter value divided by the sum of copier Jam Counter values

MCBJ (ADF) : No. of originals fed through ADF divided by the sum of ADF Jam

2. A minus sign “–” is appended when the denominator is “0” for each MCBJ.

<Jam Counter 2/3>
<table>
<tr><th>Display</th><th>Description</th><th>Display</th><th>Description</th></tr>
<tr><td>5th Drawer</td><td>No. of misfeeds that occurred at the 5th Drawer of the copier</td><td>Dup Entrance</td><td>No. of misfeeds that occurred at the entrance of the Duplex Unit</td></tr>
<tr><td>Vertical Trans.</td><td>No. of misfeeds that occurred at the transport section of the copier</td><td>Dup Exit</td><td>No. of misfeeds that occurred at the paper take-up section of the Duplex Unit</td></tr>
<tr><td>Hori-zontal Trans.</td><td>No. of misfeeds that occurred at the paper separator section of the copier</td><td>Sorter</td><td>No. of misfeeds that occurred at the finishing option</td></tr>
<tr><td>Exit Section</td><td>No. of misfeeds that occurred at the exit section of the copier</td><td>ADF Feed</td><td>No. of misfeeds that occurred at the document take-up section of the ADF</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Jam</td><td>
<Jam Counter 3/3>
<table>
<tr><th>Display</th><th>Description</th><th>Display</th><th>Description</th></tr>
<tr><td>ADF Trans-port</td><td>No. of misfeeds that occurred at the trans-port section of the ADF</td><td>ADF Exit</td><td>No. of misfeeds that occurred at the exit section of the ADF</td></tr>
<tr><td>ADF Reverse</td><td>No. of misfeeds that occurred at the turn-over section of the ADF</td><td>SADF Feed</td><td>No. of misfeeds that occurred at the SADF</td></tr>
</table>
<Clearing a Count>
Using the ▼ or ▲ key, highlight the count to be cleared, then press the Clear key.

NOTE
If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.
</td></tr>
<tr><td>Retry</td><td>
Shows the number of paper take-up retries carried out at different paper sources.
<table>
<tr><th>Display</th><th>Description</th><th>Display</th><th>Description</th></tr>
<tr><td>1st Drawer</td><td>No. of paper take-up retries at the 1st Drawer of the copier</td><td>5th Drawer</td><td>No. of paper take-up retries at the 5th Drawer of the copier</td></tr>
<tr><td>2nd Drawer</td><td>No. of paper take-up retries at the 2nd Drawer of the copier</td><td>Dup</td><td>No. of paper take-up retries at the Duplex Unit</td></tr>
<tr><td>3rd Drawer</td><td>No. of paper take-up retries at the 3rd Drawer of the copier</td><td>Manual Feed</td><td>No. of paper take-up retries at the Multi Bypass Tray</td></tr>
<tr><td>4th Drawer</td><td>No. of paper take-up retries at the 4th Drawer of the copier</td><td></td><td></td></tr>
</table>
<Clearing a Count>
Using the ▼ or ▲ key, highlight the count to be cleared, then press the Clear key.

NOTE
If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.
</td></tr>
</table>

[Tech. Rep. Mode ▶ Counter]

Touch Panel Display	Operation
Trouble	Shows the number of malfunctions that have occurred in different parts of the copier system.

<Trouble Counter 1/5>

Malfunction Code	Location	Malfunction Code	Location
C000X	Lower Drive Motor	C0070/1	Toner Hopper Motor
C001X	Upper Drive Motor	C0200	PC Charge Corona
C004A/b	Original Cooling Fan	C03XX	Control Board/ Harness
C004C	In-machine Cooling Fan	C04XX	Exposure Lamp

<Trouble Counter 2/5>

Malfunction Code	Location	Malfunction Code	Location
C0500	Fuser Warm-Up	C0610	Lens Drive System
C0510	Fuser Low Temp.	C0620	Mirror Drive System
C0520	Fuser High Temp.	C06FX	Optical Interface
C0600	Scanner Drive Syst.	C090X	3rd Drawer

<Trouble Counter 3/5>

Malfunction Code	Location	Malfunction Code	Location
C091X	2nd Drawer	C0998-F	LCC Shift-Tray
C092X	1st Drawer	C0F02	Orig. Size Det. CPU
C095X	4th Drawer	C0F10	EE Sensor
C0990-6	LCC Main-Tray	C0F2X	AIDC Sensor

<Trouble Counter 4/5>

Malfunction Code	Location	Malfunction Code	Location
C0F3X	ATDC Sensor	C0b1X	Sorter (Paper Clamp)
C0F79	Paper Empty Sensor	C0b3X	Sorter (Guide)
C0FE/FX	Original Sensor	C0b5X	Sorter (Stapler)
C0b0X	Sorter (Transport)	C0b6X	Sorter (Bin Shift)

[Tech. Rep. Mode ▶ Counter]

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Trouble</td><td>
<Trouble Counter 5/5>
<table>
<tr><th>Malfunction Code</th><th>Location</th></tr>
<tr><td>C0b7X</td><td>Sorter (Punch)</td></tr>
<tr><td>C0d00</td><td>Front/Rear Guide</td></tr>
<tr><td>C0d20</td><td>Dup Storage</td></tr>
<tr><td>C0d5X</td><td>Dup Drive Motor</td></tr>
</table>
<Clearing a Count>
Using the ▼ or ▲ key, highlight the count to be cleared, then press the Clear key.

NOTE
If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.
</td></tr>
<tr><td>Maintenance</td><td>
Five different values (counts) can be set for the Maintenance Counter. Each counter is increased by 1 each time a copy is made and, when the preset count is reached, the maintenance call reminder message and maintenance code “M1” appear on the Touch Panel.

NOTE
Whether the maintenance call reminder message is given or not depends on the setting made for “Maintenance” of “Tech. Rep. Choice.” Also, copying is not inhibited even when the reminder message appears.

<Setting a Count>
1. Using the ▼ or ▲ key, select the counter to be set.
2. Enter the value from the 10-Key Pad.

<Clearing the Set Value/Count>
Using the ▼ or ▲ key, highlight the count to be cleared, then press the Clear key.

NOTE
If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.
</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Port/option</td><td>
Shows the frequency of use of each of the different parts of the copier including options to serve as a guideline for the maintenance time for the Tech. Rep.

<Port/Option 1/3>
<table>
<tr><th>Display</th><th>Description</th><th>Display</th><th>Description</th></tr>
<tr><td>Manual Feed</td><td>No. of sheets of paper fed from the Multi Bypass Tray</td><td>3rd Drawer</td><td>No. of sheets of paper fed from the 3rd Drawer</td></tr>
<tr><td>1st Drawer</td><td>No. of sheets of paper fed from the 1st Drawer</td><td>4th Drawer</td><td>No. of sheets of paper fed from the 4th Drawer</td></tr>
<tr><td>2nd Drawer</td><td>No. of sheets of paper fed from the 2nd Drawer</td><td>5th Drawer</td><td>No. of sheets of paper fed from the 5th Drawer</td></tr>
</table>
<Port/Option 2/3>
<table>
<tr><th>Display</th><th>Description</th><th>Display</th><th>Description</th></tr>
<tr><td>ADF Entrance</td><td>No. of sheets of paper fed through the ADF take-up section.</td><td>Sorter</td><td>No. of sheets of paper fed out of the Sorter</td></tr>
<tr><td>ADF Reverse</td><td>No. of originals fed through the turnover unit of the ADF</td><td>Staple</td><td>No. of stapling sequences performed</td></tr>
<tr><td>DUP</td><td>No. of sheets of paper fed from the Duplex Unit</td><td>Punch</td><td>No. of punching sequences performed</td></tr>
</table>
<Port/Option 3/3>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>PC Drum</td><td>No. of revolutions of the PC Drum, as converted to the number of sheets of A4 crosswise paper fed through the copier</td></tr>
<tr><td>Developer</td><td>No. of sheets of paper fed through</td></tr>
<tr><td>Fusing Roller</td><td>No. of revolutions of the Fusing Roller, as converted to the number of sheets of A4 crosswise paper fed through the copier</td></tr>
</table>
<Clearing a Count>

Using the ▼ or ▲ key, highlight the count to be cleared, then press the Clear key.

NOTE

If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.
</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Auto CPU Reset</td><td>Shows whether a CPU overrun has occurred in different CPU-mounted boards which are monitored by the watchdog function.
<table>
<tr><th>Display</th><th>Description</th><th>Display</th><th>Description</th></tr>
<tr><td>MSC/ Panel</td><td>PWB-A</td><td>ADF</td><td>AFR-12/AF-5 (PWB-A)</td></tr>
<tr><td>Master</td><td>PWB-A</td><td>Sorter</td><td>S-106/ST-104 S-207/ST-210 (PWB-A)</td></tr>
<tr><td>SCP</td><td>PWB-F</td><td>Data Controller</td><td>D-102 (PWB-A)</td></tr>
</table>
NOTE
This counter does not count the number of CPU overruns which have occurred. “1” indicates that there was a CPU overrun, while “0” indicates there was no CPU overrun.

<Clearing the Count>
Using the ▼ or ▲ key, highlight the count to be cleared, then press the Clear key.

NOTE
If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.</td></tr>
</table>

(5) I/O Check

- This function is used to check the sensors and boards when a paper misfeed or malfunction occurs, thereby locating the fault.

[Tech. Rep. Mode ▶ I/O Check]

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>IC Port Data Check</td><td>Shows the states of the I/O ports when the copier is in stand-by. With the output ports, the change of the data in the port allows an operation check of electrical components to be performed.

NOTE
For details, see TROUBLESHOOTING.</td></tr>
<tr><td>Paper Path Sensors Check</td><td>A sheet of paper is fed through the copier to switch the state of sensors along the paper path between 1 and 0, thereby determining whether the sensors are operational or faulty.
<Procedure>
1. Select the paper path (paper source, copying mode, etc.) to be checked and enter this function.
2. Press the Start key to start the sensor check sequence.
<table>
<tr><th>No.</th><th>Display</th><th>Sensor Name</th></tr>
<tr><td>1</td><td>1st Feed</td><td rowspan="4">1st Drawer Paper Take-up Sensor PC55
2nd Drawer Paper Take-up Sensor PC56
3rd Drawer Paper Take-up Sensor PC21
4th Drawer Paper Take-up Sensor PC29</td></tr>
<tr><td>2</td><td>2nd Feed</td></tr>
<tr><td>3</td><td>3rd Feed</td></tr>
<tr><td>4</td><td>4th Feed</td></tr>
<tr><td>5</td><td>1st Vertical</td><td rowspan="5">Vertical Transport Sensor PC64
Vertical Transport Sensor 3 PC17
Vertical Transport Sensor 4 PC22
Transport Roller Sensor PC51
Paper Leading Edge Detecting Sensor PC54</td></tr>
<tr><td>6</td><td>2nd Vertical</td></tr>
<tr><td>7</td><td>3rd Vertical</td></tr>
<tr><td>8</td><td>4th Vertical</td></tr>
<tr><td>9</td><td>Trans. Roller</td></tr>
<tr><td>10</td><td>Leading Edge</td><td rowspan="4">Paper Exit Sensor PC30
Duplex Unit Vertical Transport Sensor 1 PC30
Duplex Unit Turnover Path Sensor PC13
Duplex Unit Paper Entry Sensor PC14
Duplex Unit Paper Take-Up Sensor PC16</td></tr>
<tr><td>11</td><td>1st Exit</td></tr>
<tr><td>12</td><td>2nd Exit</td></tr>
<tr><td>13</td><td>Turnover Up</td></tr>
<tr><td>14</td><td>Turnover Low</td><td rowspan="3">Non-Sort Exit Sensor PC1
Sort Exit Sensor PC2
Punch Registration Sensor PC11</td></tr>
<tr><td>15</td><td>Dup Entrance</td></tr>
<tr><td>16</td><td>Dup Exit</td></tr>
<tr><td>17</td><td>Non Sort</td><td rowspan="3"></td></tr>
<tr><td>18</td><td>Sort</td></tr>
<tr><td>19</td><td>Punch Regist</td></tr>
</table>
NOTE
The sensor detects paper when “0” and no paper when “1”.</td></tr>
</table>

[Tech. Rep. Mode ▶ I/O Check]

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Memory Check</td><td>Touching the Memory Check key causes the copier to automatically check the ROM/RAM on Master Board PWB-A.
<table>
<tr><th>Result</th><th>Display</th><th>Action</th></tr>
<tr><td>Normal</td><td>“Memory check completed. Turn the main switch OFF, and then ON.”</td><td>Turn OFF, then ON, the Power Switch.</td></tr>
<tr><td rowspan="5">Faulty</td><td>“ROM ERROR”</td><td>PWB-A (IC202A)</td></tr>
<tr><td>“MESSAGE ROM ERROR”</td><td>PWB-A (IC202A)</td></tr>
<tr><td>“RAM ERROR”</td><td>Change PWB-A.</td></tr>
<tr><td>“VRAM ERROR”</td><td>Change PWB-A.</td></tr>
<tr><td>“LCDTC ERROR”</td><td>Change PWB-A.</td></tr>
</table></td></tr>
<tr><td>Controller Board Check</td><td>Touching the Controller Board Check key causes the copier to perform self-diagnostics of Master Board PWB-A.
<table>
<tr><th>Result</th><th>Display</th><th>Action</th></tr>
<tr><td>Normal</td><td>The highlighted “Controller Board Check” key is returned to normal display.</td><td>None</td></tr>
<tr><td>Faulty</td><td>The malfunction code appears.</td><td>Change PWB-A.</td></tr>
</table></td></tr>
</table>

(6) ROM Version

[Tech. Rep. Mode ▶ ROM Version]

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>ROM Version</td><td>Shows the ROM versions of the following boards.
<table>
<tr><th colspan="2">Display</th><th>Description</th></tr>
<tr><td>MSC/panel</td><td>IC202A</td><td>PWB-A</td></tr>
<tr><td>Master</td><td>IC2A</td><td>PWB-A</td></tr>
<tr><td>SCP</td><td>IC1F</td><td>PWB-F</td></tr>
<tr><td colspan="2">ADF</td><td>PWB-A of AFR-12, AF-5</td></tr>
<tr><td colspan="2">Sorter</td><td>PWB-A of S-106, ST-104, S-207, ST-210</td></tr>
<tr><td>Data Controller</td><td>IC2</td><td>D-102 board</td></tr>
</table></td></tr>
</table>

(7) RD Mode

[Tech. Rep. Mode ▶ Last Trouble]

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>RD Mode</td><td>Make the initial settings of the copier for the Data Terminal.</td></tr>
<tr><td>ID Code</td><td>Entering a 7-digit ID code from the 10-Key Pad enables making the following settings. When the ID code is entered and transmitted after the initial settings have been made, it executes the transmission of MAINT. START to the Center.</td></tr>
<tr><td>Maintenance</td><td>Used to make the initial settings and various transmissions.</td></tr>
<tr><td>DT Setting</td><td>Enter the following data.</td></tr>
<tr><td>CT-ID</td><td>Enter the 4-digit ID number of the Center which has been programmed in the Center personal computer.</td></tr>
<tr><td>DT-ID</td><td>Enter the 6-digit ID number of the Data Terminal.</td></tr>
<tr><td>TEL No.</td><td>Enter the 19-or-less-digit phone number of the modem connected to the Center personal computer.

NOTE
1. When the office extension and outside line use different systems, enter “P” for a “pulse” telephone line or “T” for a “tone” telephone line before the outside line number.
2. The time it takes the private branch exchange (PBX) system to switch from the extension line to the outside line varies depending on the type of PBX system used. Set this time as follows.
Fixed switching time: Enter the pause code “–” (a single “–” lasts 2 sec.).
Varying switching time:Enter the wait code “W.”</td></tr>
<tr><td>Common DT</td><td>Settings of the following functions.</td></tr>
<tr><td>Dial Mode</td><td>Select the type of telephone line of the user.
<table><tr><td>Pulse line</td><td>Tone line</td></tr><tr><td>Pulse</td><td>Tone</td></tr></table></td></tr>
<tr><td>Auto Receive</td><td>Define “Yes” or “No” for the auto reception function.
<table><tr><td>YES</td><td>NO</td></tr></table>
NOTE
Select “Yes” if the line is dedicated to the Date Terminal.</td></tr>
<tr><td>Result Code</td><td>Set the value according to the type of modem on the copier.

NOTE
Don’t use this function as long as “5” has been set for it.</td></tr>
<tr><td>Report Format</td><td>Japan only
<table><tr><td>10 BIT</td></tr></table></td></tr>
<tr><td>RAM Clear</td><td>Reinitializes the Data Terminal.
<table><tr><td>Maintenance</td><td>NO</td></tr></table></td></tr>
</table>

[Tech. Rep. Mode ▶ RD Mode]

Touch Panel Display	Setting
RD Mode	. . . . .
Maintenance	. . . . .
Data Save/ Load	Enables transmission of Data Save and Data Load.
Data Save	Transmits the command that saves the PPC RAM data to the Center.
Data Load	Transmits the command that loads the data sent by Data Save back to the PPC.
Initial Transmission	Used to perform the initial transmission from the PPC to the Center to check for correct communication when the Data Terminal has been set up.
Call Comple-tion	Used by the Tech. Rep. to notify the Center that his/her service job for the copier has been completed.
Counter Clear	Used to clear the count of the spare counter set by the Center. <Procedure> 1. Select the spare counter to be cleared. 2. Touch “Call Completion” which transmits a signal to the Center to clear the count of the specified counter.

(8) Accessory Test

- This function is used to make an operation check and adjustments of the ADF and Sorter or Staple Sorter.

[Tech. Rep. Mode ▶ Accessory Test]

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>ADF Check</td><td>Enables the operation check and adjustments to be performed for the document feeder.</td></tr>
<tr><td>Paper Passage & Input Check</td><td>Makes a paper passage test in each operating mode of the ADF and checks the sensors along the paper path for operation.
<table>
<tr><td>Step Feed</td><td>2in1</td><td>2-Sided</td></tr>
<tr><td>Normal</td><td>SADF</td><td></td></tr>
</table>
<table>
<tr><td>Empty Sensor</td><td>Width Sensor A</td></tr>
<tr><td>ADF Entrance Sensor</td><td>Width Sensor B</td></tr>
<tr><td>Register Sensor</td><td>Width Sensor C</td></tr>
<tr><td>Exit Sensor</td><td>Exit Drawer Sensor</td></tr>
<tr><td>Auto Feeder Empty Sensor</td><td>Orig. Move Home Sensor</td></tr>
</table>
NOTE
“1” - paper present; “0” - paper not present

<Procedure>
1. Select the operating mode to be checked and touch “Next.”
2. Load the required number of originals into the Document Feed Tray and press the Start key.</td></tr>
<tr><td>Output Check</td><td>Checks each of the motors and solenoids for operation.
<table>
<tr><td>M1</td><td>M2</td><td>M3</td><td>M4</td><td>M5</td></tr>
<tr><td>SL1</td><td>SL2</td><td>SL3</td><td>SL4</td><td>CL</td></tr>
</table>
<Procedure>
• Select the part to be checked and press the Start key.</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>Doc. Stop Position Set</td><td>Adjusts the document stop position in different operating modes of the ADF.
<table>
<tr><td>1-Sided
2-Sided
2 in 1</td><td>2in1 Space in between origs.
Auto Feeder
Regist Loop</td></tr>
</table>
<table>
<tr><td>Setting</td><td>43 ..... 50 ..... 58</td></tr>
<tr><td>Stop Position</td><td>−7 mm ..... 0 mm ..... +8 mm</td></tr>
</table>
NOTE
A greater setting value (+ direction) moves away from the Original Width Scale. (In “2in1 Space in between origs.,” it is for greater distances between the documents.)

<Procedure>
1. Select the operating mode to be checked and load the required number of originals into the Document Feed Tray.
2. Press the Start key. When the original is taken up and then stopped, raise the ADF and adjust the position using the ◀ or ▶ key; then, feed the original once again for a recheck.</td></tr>
<tr><td>Sorter Check</td><td>Enables the following operation checks to be performed for the Sorter.</td></tr>
<tr><td>Transport Motor</td><td>The press of the Start key energizes the Transport Motor to turn the various Transport Rollers.

NOTE
The 10-Bin Sorter is not operated.</td></tr>
<tr><td>Bin Movement</td><td>The press of the Start key energizes the Bin Moving Motor to move the bins up and down.</td></tr>
<tr><td>Stapling</td><td>The press of the Start key runs a stapling sequence if paper is loaded in the 1st Bin; if no paper is loaded, only a paper clamp motion occurs.</td></tr>
<tr><td>Paper Aligning</td><td>The press of the Start key causes a paper aligning motion to occur for the width of the paper currently selected for use.</td></tr>
<tr><td></td><td>When “Next” is touched after any of the Sorter Check functions has been selected, the “Input Check” screen appears. When that particular check operation is then run with this screen on the Touch Panel, either 1 or 0 is shown after each sensor according to its state.
<table>
<tr><td>Paper Aligning Bar Home
Bin Empty
Paper Clamp Position
Paper Clamp Home</td><td>Staple Paper Detect
Stapler Home
Bin Home Position</td></tr>
</table></td></tr>
</table>

(9) Level History

- This function is used to show and set the various level histories which were changed according to the operating conditions of the copier and user requirements.

[Tech. Rep. Mode ▶ RD Mode]

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>Level History</td><td>
The touch of the Level History key will show the various level histories as detailed below. Of all data displayed, only that for “ATDC Ref. Value” and “Fuser Temp. Control” can be changed.
- ATDC Ref. Value -
• Change this data when the RAM Board has been changed or a Developing Unit from another copier has been installed.
- Fuser Temp. Control -
• Change this data if fusing performance becomes poor due to the operating environment and the paper being used.
<Level History 1/2>
<table>
<tr><th>Display</th><th>Variable Range</th><th>Increments</th><th>Description</th></tr>
<tr><td>ATDC Ref. Value</td><td>2 to 254</td><td>2 step</td><td>F8 adjusted value</td></tr>
<tr><td>ATDC Target Level</td><td>1.0 to 9.0 (%)</td><td>0.5 (%)</td><td>Target ATDC level</td></tr>
<tr><td>ATDC Current Level</td><td>1.0 to 9.0 (%)</td><td>0.5 (%)</td><td>Current ATDC level</td></tr>
<tr><td>Vg Default Level</td><td>400 to 850 (V)</td><td>30 (V)</td><td>Initial grid voltage setting</td></tr>
<tr><td>Vg Current Level</td><td>400 to 850 (V)</td><td>30 (V)</td><td>Grid voltage correction values due to changes with time</td></tr>
</table>
<Level History 2/2>
<table>
<tr><th>Display</th><th>Variable Range</th><th>Increments</th><th>Description</th></tr>
<tr><td>Fuser Temp. Control</td><td>185 to 205 (°C)</td><td>10 (°C)</td><td>Target fusing temperature</td></tr>
<tr><td>Fuser Temp. Current</td><td>160 to 220 (°C)</td><td>10 (°C)</td><td>Current fusing temperature</td></tr>
<tr><td>Expo. Default Level</td><td>48 to 72 (V)</td><td>1 (V)</td><td>Initial Exposure Lamp level setting</td></tr>
<tr><td>Expo. Current Level</td><td>48 to 72 (V)</td><td>1 (V)</td><td>Exposure Lamp level correction values due to changes with time</td></tr>
<tr><td>Toner Replenishing Time</td><td>0 to 1270 (mm)</td><td>10 steps</td><td>Cumulative time of toner replenishing</td></tr>
</table>
</td></tr>
</table>

(10) Machine Status

- This function shows the codes of isolated malfunctions which are currently present. This screen is also accessible by touching the wrench mark shown at the bottom left corner of the Basic screen under normal operating conditions.

[Tech. Rep. Mode ▶ Machine Status]

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>Machine Status</td><td>Of the malfunction codes listed below, those that have occurred are displayed, together with the functions that are disabled by these malfunctions.Up to five isolated malfunctions are shown. When a sixth isolated malfunction occurs, the copier considers it as an ordinary malfunction. Even if there are less than five isolated malfunctions, if there are isolated malfunctions occurring at all paper sources, the next isolated malfunction will be regarded as an ordinary one.
<table>
<tr><th>Malfunction Code</th><th>Description</th></tr>
<tr><td>C004b</td><td>Optical Section Cooling Fan Motor malfunction</td></tr>
<tr><td>C0350 to 52</td><td>SP communication failure</td></tr>
<tr><td>C09XX</td><td>Paper take-up failure</td></tr>
<tr><td>C0dXX</td><td>Duplex Unit malfunction</td></tr>
<tr><td>C0F02</td><td>Orig. Size Det. CPU</td></tr>
<tr><td>C0F2X</td><td>Faulty AIDC Sensor</td></tr>
<tr><td>C0F7X</td><td>Faulty Paper Empty Sensor</td></tr>
<tr><td>C0FEX to FX</td><td>Faulty Original Size Detecting Sensor</td></tr>
<tr><td>C0b3X / 5X to 7X</td><td>Sorter malfunction</td></tr>
</table>
<Clearing Procedure>
With the Machine Status screen on the Touch Panel, swinging open and close the Front Door will clear all the isolated malfunctions.</td></tr>
</table>

(11) Admin. Mode

- This function is used to enter or change the administrator number, in addition to the functions set in the “Administrator Mode” available from User’s Choice.

[Tech. Rep. Mode ▶ Admin. Mode]

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>Copy Track Mode</td><td rowspan="5">See “Administrator Mode” of User’s Choice.</td></tr>
<tr><td>Copy Track Data</td></tr>
<tr><td>Maximum Copy Sets</td></tr>
<tr><td>Non-Auto Shut off</td></tr>
<tr><td>User Help</td></tr>
<tr><td>Administrator # Input</td><td>From the 10-Key Pad, enter a 4-digit number (0000 to 9999) that serves as an ID number for opening the “Admin. Mode” of User’s Choice.</td></tr>
</table>

36 SECURITY MODE

- This mode is used to set the counter and copy vender.

36-1. Security Mode Setting Procedure

<Setting Procedure>

1. Show the Service Mode Menu on the Touch Panel and then press the following keys in this order.
2. Stop key → "9" of 10-Key Pad
3. Make the necessary settings by following the instructions given sequentially on the screen.

NOTE

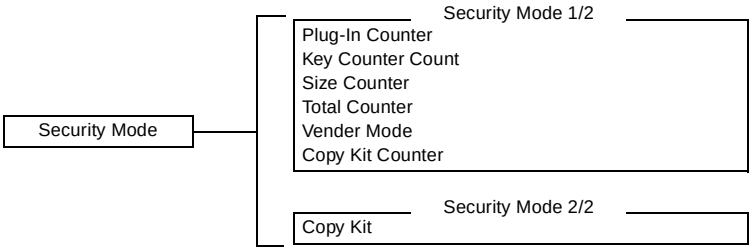
The selected function is highlighted.

<Exiting the Mode>

Perform either one of the following steps to go bask to the Basic screen.

- Press the Panel Reset key on the control panel.
- Touch [Ex] as many time as it is required to return to the Basic screen.

36-2. Security Mode Function Tree



36-3. Setting in the Security Mode

[Security Mode Menu]

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>Plug-In Counter</td><td>Select whether or not to inhibit copying if a Key Counter is not inserted when the copier is equipped with a Key Counter.
<table>
<tr><td>Yes</td><td>Inhibits copying if the Key Counter is not inserted.</td></tr>
<tr><td>No</td><td>Permits copying even if the Key Counter is not inserted.</td></tr>
</table>
NOTE
Be sure to select “ON” when the copier is equipped with a Key Counter.</td></tr>
<tr><td>Key Counter</td><td>Select the condition by which the Key Counter count is increased.
<table>
<tr><td># of Sheets</td><td>Copy Cycle</td></tr>
</table>
NOTE
See the Count-up Table for details.</td></tr>
<tr><td>Size Counter</td><td>Select the size of the paper to be counted by the Size Counter.
<table>
<tr><td>No Count</td><td>A3/11×17</td></tr>
<tr><td>A3/B4/
11×17/Legal</td><td>A3/B4/FLS/
11×17/
11×14/Legal</td></tr>
</table>
NOTE
See the Count-up Table for details.</td></tr>
</table>

Touch Panel Display	Setting (The default is **Highlighted**.)
Total Counter	Select the conditions (paper size and 2-sided copying) by which the Total Counter count is increased.

Mode 0	1 count per 1 copy cycle
Mode 1	Multiple count-up according to paper size and 2-sided copying
Mode 2	Multiple count-up according to paper size and 2-sided copying

NOTE
See the Count-up Table for details.

<Count-up Table>

Copying		1-Sided						2-Sided					
Size		Sizes other than those set			Set sizes			Sizes other than those set			Set sizes		
Total		Mode			Mode			Mode			Mode		
		0	1	2	0	1	2	0	1	2	0	1	2
Total (mechanical, electronic)		1			1	2	2	2			2	4	4
Size (electronic)		0			1	1	2	0			2	2	0
2-Sided Total (electronic)		0			0			1	1	2	1	1	4
2-Sided Size (electronic)		0			0			0			1	1	4
Key (mechanical)	Counting copies	1			1	2	2	1	2	2	1	4	4
	Counting copy cycles	1			1	2	2	2			2	4	4

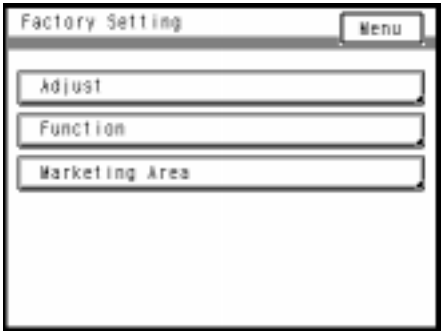
0: No count 1: 1 count 2: 2 counts 4: 4 counts

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted.)</th></tr>
<tr><td>Vendor Mode</td><td>Make the display setting according to the type of the optional vendor mounted on the copier. (Japan only)
<table>
<tr><td>Key Counter</td><td>Disables the Copy Kit counter.</td></tr>
<tr><td>Coin Vendor</td><td>———————————</td></tr>
<tr><td>Card</td><td>———————————</td></tr>
</table>
NOTE
Select “Key Counter.” No other setting should be made.</td></tr>
<tr><td>Copy Kit Counter</td><td>Select whether to enable or disable the “Copy kit count”; if the counter is to be enabled, select whether to allow or inhibit the start of a copy cycle when the count reaches the preset value.
<table>
<tr><td>NO</td><td>Disables the Copy Kit counter.</td></tr>
<tr><td>Mode 1</td><td>Copying not inhibited after the count reaches the preset value.</td></tr>
<tr><td>Mode 2</td><td>Copying inhibited after the count reaches the preset value.</td></tr>
</table>
NOTE
The Copy Kit counter is enabled by selecting mode 1 or 2. When the count reaches the preset value, the maintenance call reminder message is given, together with the display of maintenance code “M4” even if “No” has been selected for “Maintenance.”</td></tr>
<tr><td>Copy Kit</td><td>Set the Copy Kit counter value when “Mode 1” or “Mode 2” is selected for “Copy Kit Counter.”</td></tr>
</table>

37 FACTORY SETTING

- Factory Setting is used to make adjustments at the factory.

37-1. Factory Setting Menu Screen



1149O424CA

37-2. Factory Setting Function Setting Procedure

<Setting Procedure>

1. Show the Service Mode Menu on the Touch Panel and press the following keys in this order.
2. Enter the Factory Setting mode by pressing the following keys in this order.

   Stop key → Start key
3. Select the particular Factory Setting mode function to be set.
4. Make the necessary settings by following the instructions given sequentially on the screen.

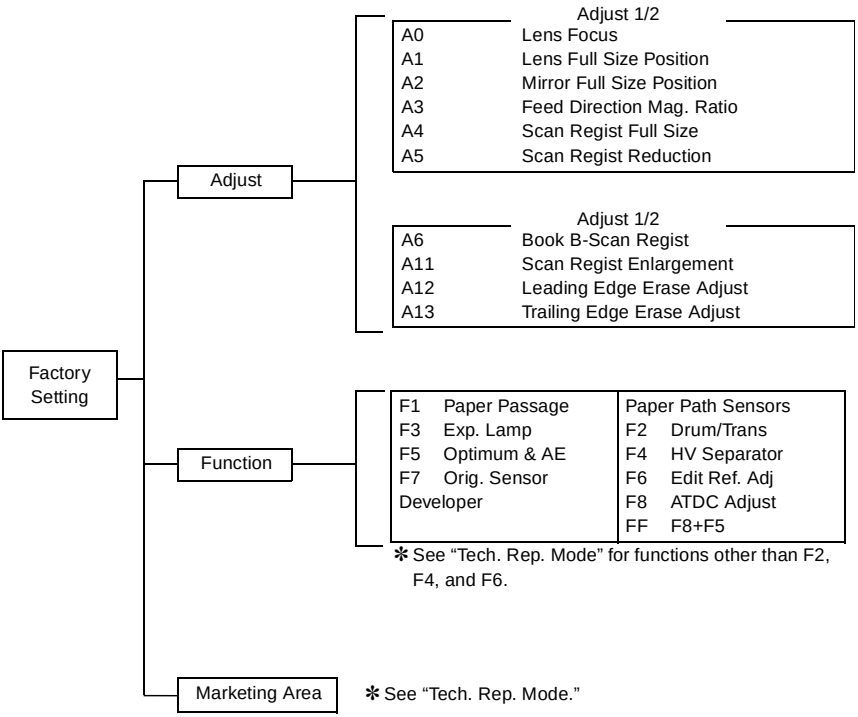
NOTE

The function selected is highlighted.

<Exiting the Mode>

- Press the Panel Reset key on the control panel.
- Touch “Menu” on the Touch Panel.

37-3. Factory Setting Function Tree



(1) Function

[Factory setting ▶ Function]

Touch Panel Display	Operation
F2 Drum/Trans	Checks the PC Drum Charge Corona and Image Transfer Corona for output. ***NOTE*** *For factory adjustment only*
F4 HV Separator	Checks the Paper Separator Corona for output. ***NOTE*** *For factory adjustment only*
F6 Edit Ref. Adj	Pressing the Start key turns ON and OFF the Image Erase Lamp to make a checkered pattern on the paper, thereby checking the lamp for correct operation and adjusting its position.

- Components Energized in “Function” -

Component	F1	F2	F3	F4	F5	F6	F7	F8	FF
Main Drive Motor	❍	❍	❍	❍	❍	❍	—	❍	❍
Fan Motors	❍	❍	❍	❍	❍	❍	—	❍	❍
Toner Replenishing Motor	—	—	—	—	—	❍	—	❍	❍
Paper take-up	❍	—	—	—	—	❍	—	—	—
Scan	❍	—	❍	—	❍	❍	—	—	❍
Exposure Lamp	❍	—	❍	—	❍	—	—	—	❍
Main Erase Lamp	❍	❍	❍	❍	❍	❍	—	❍	❍
Image Erase Lamp	❍	—	—	❍	❍	❍	—	❍	❍
Synchronizing Rollers	❍	—	—	—	—	❍	—	—	—
PC Drum Paper Separator Fingers	❍	—	—	—	—	❍	—	—	—
PC Drum Charge Corona and Image Transfer Corona	❍	❍	—	—	❍	❍	—	❍	❍
Paper Separator Corona and developing bias	❍	—	❍	❍	❍	❍	—	❍	❍
Misfeed detection	❍	—	—	—	—	❍	—	—	—
Malfunction detection	❍	❍	❍	❍	❍	❍	❍	❍	❍

❍ : Energized — : Remains deenergized

(2) Adjust

- This function is used to adjust the optical system before shipment from the factory and must not be run except when the RAM Board has been replaced with a new one or memory cleared. Further, when the RAM Board has been changed or memory cleared, enter the factory settings indicated on the Adjust Mode label affixed to the inside of the Front Door.

[Factory setting ▶ Adjust]

<table>
<tr><th colspan="2">Touch Panel Display</th><th>Operation</th></tr>
<tr><td>A0</td><td>Lens Focus</td><td>Corrects the focal length of the Lens. (Match the grouping of the Lens being used.)
<table>
<tr><td>Setting</td><td>49</td><td>50</td><td>51</td></tr>
<tr><td>Description</td><td>Short focal length adjustment</td><td>Standard</td><td>Long focal length adjustment</td></tr>
</table></td></tr>
<tr><td>A1</td><td>Lens Full Size Position</td><td>Adjusts the zoom ratio in the crosswise direction by varying the Lens full size position.
<table>
<tr><td>Setting</td><td>42..... 50 .....57</td></tr>
<tr><td>Description</td><td>Reduction direction Enlargement direction</td></tr>
</table></td></tr>
<tr><td>A2</td><td>Mirror Full Size Position</td><td>Corrects the optical path length of the Mirror with respect to the Lens focal length.
<table>
<tr><td>Setting</td><td>42 ..... 50 .....57</td></tr>
<tr><td>Description</td><td>Reduction direction Enlargement direction</td></tr>
</table></td></tr>
<tr><td>A3</td><td>Feed Direction Mag. Ratio</td><td>Adjusts the zoom ratio in the feeding direction by varying the scan speed.
<table>
<tr><td>Setting</td><td>42..... 50..... 58</td></tr>
<tr><td>Description</td><td>–3.2% ..... 0%..... +3.2%
(Reduction direction) (Enlargement direction)</td></tr>
</table></td></tr>
<tr><td>A4</td><td>Scan Resist Full Size</td><td>Corrects the amount of offset along the leading edge in the full size mode by varying the Synchronizing Roller start timing.
<table>
<tr><td>Setting</td><td>30..... 50.....70</td></tr>
<tr><td>Description</td><td>–5.6m .....±0 ..... +5.6mm
(Smaller) (Greater)</td></tr>
</table></td></tr>
</table>

Touch Panel Display		Operation
A5	Scan Regist Reduction	Corrects the amount of offset along the leading edge in a reduction mode by varying the Synchronizing Roller start timing. Setting: 30 ..... **50** ..... 70 Description: –5.6mm ..... ±0 .....+5.6mm (Smaller) (Greater)
A6	Book B-Scan Regist	Corrects registration in Book B-Scan by varying the Synchronizing Roller start timing. Setting: 30 ..... **50** ..... 70 Description: –5.6mm ..... ±0 ..... +5.6mm (Smaller) (Greater)
A11	Scan Regist Enlargement	Corrects the amount of offset along the leading edge in an enlargement mode by varying the Synchronizing Roller start timing. Setting: 30 ..... **50** ..... 70 Description: –5.6mm ..... ±0 ..... +5.6mm (Smaller) (Greater)
A12	Leading Edge Erase Adjust	Corrects the width of void image along the leading edge of the image by varying the Image Erase Lamp ON timing. Setting: 42..... **50**.....58 Description: –6.00mm .....±0 ..... +6.00mm (Smaller) (Greater)
A13	Trailing Edge Erase Adjust	Corrects the width of void image along the trailing edge of the image by varying the Image Erase Lamp ON timing. Setting: 42 ..... **50** ..... 58 Description: –8mm ..... ±0 ..... +8mm (Smaller) (Greater)

EP3010

DIS/REASSEMBLY, ADJUSTMENT

MINOLTA

18605

Safety Precautions for Inspection and Service

When performing inspection and service procedures, observe the following precautions to prevent accidents and ensure utmost safety.

✻ Depending on the model, some of the precautions given in the following do not apply.

Different markings are used to denote specific meanings as detailed below.

WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

The following graphic symbols are used to give instructions that need to be observed.

Used to call the service engineer attention to what is graphically represented inside the marking (including a warning).

Used to prohibit the service engineer from doing what is graphically represented inside the marking.

Used to instruct the service engineer to do what is graphically represented inside the marking.

WARNING

1. Always observe precautions.

- Parts requiring special attention in this product will include a label containing the mark shown on the left plus precautionary notes. Be sure to observe the precautions.
- Be sure to observe the “Safety Information” given in Operator’s Manual.

2. Before starting the procedures, be sure to unplug the power cord.

- This product contains a high-voltage unit and a circuit with a large current capacity that may cause an electric shock or burn.
- The product also contains parts that can jerk suddenly and cause injure.
- If this product uses a laser, laser beam leakage may cause eye damage or blindness.

3. Use the specified parts.

- For replacement parts, always use the genuine parts specified in the manufacturer’s Parts Manual. Installing a wrong or unauthorized part could cause dielectric breakdown, overload, or undermine safety devices resulting in possible electric shock or fire.
- Replace a blown electrical fuse or thermal fuse with its corresponding genuine part specified in the manufacturer’s Parts Manual. Installing a fuse of a different make or rating could lead to a possible fire. If a thermal fuse blows frequently, the temperature control system is probably of a problem and action must be taken to eliminate the cause of the problem.

4. Handle the power cord with care and never use a multiple socket.

- Do not brake, crush or otherwise damage the power cord. Placing a heavy object on the power cord, or pulling or bending it may damage it, resulting in a possible fire or electric shock.
- Do not use a multiple outlet to which any other appliances or machines is connected.
- Be sure the power outlet meets or exceeds the specified capacity.

5. Be careful about the high-voltage parts.

- A part marked with the symbol shown on the left carries a high voltage. Touching it could result in an electric shock or burn. Be sure to unplug the power cord before servicing this part or the parts near it.

6. Do not keep your hands wet when performing the procedures.

- Do not unplug or plug in the power cord, or perform any kind of service or inspection with wet hands. Doing so could result in an electric shock.

7. Do not touch a high-temperature part.

- A part marked with the symbol shown on the left and other parts such as the exposure lamp and fusing roller can be very hot while the machine is energized. Touching them may result in a burn.
- Wait until these parts have cooled down before replacing them or any surrounding parts.

8. Make a ground connection at all times (This item may not be effected in USA).

- Be sure to connect a ground wire to the ground terminal even when performing an inspection or repair. Without proper grounding, electrical leakage could result in an electric shock or fire.
- Never connect the ground wire to a gas pipe, water pipe, telephone ground wire, or a lightning conductor.

9. Do not remodel the product.

- Modifying this product in a manner not authorized by the manufacturer may result in a fire or electric shock. If this product uses a laser, laser beam leakage may cause eye damage or blindness.

10. Restore all parts and harnesses to their original positions.

- To promote safety and prevent product damage, make sure the harnesses are returned to their original positions and properly secured in their clamps and saddles in order to avoid hot parts, high-voltage parts, and sharp edges, or being crushed.
- To promote safety, make sure that all tubing and other insulating materials are returned to their original positions. Make sure that floating components mounted on the circuit boards are at their correct distance and position off the boards.

CAUTION

1. Precautions for Service Jobs

- A toothed washer and spring washer, if used originally, must be reinstalled. Omitting them may result in contact failure which could cause an electric shock or fire.
- When reassembling parts, make sure that the correct screws (size, type) are used in the correct places. Using the wrong screw could lead to stripped threads, poorly secured parts, poor insulating or grounding, and result in a malfunction, electric shock or injury.
- Take great care to avoid personal injury from possible burrs and sharp edges on the parts, frames and chassis of the product.
- When moving the product or removing an option, use care not to injure your back or allow your hands to be caught in mechanisms.

2. Precautions for Servicing with Covers and Parts Removed

- Wherever feasible, keep all parts and covers mounted when energizing the product.
- If energizing the product with a cover removed is absolutely unavoidable, do not touch any exposed live parts and use care not to allow your clothing to be caught in the moving parts. Never leave a product in this condition unattended.
- Never place disassembled parts or a container of liquid on the product parts falling into, or the liquid spilling inside, the mechanism could result in an electric shock or fire.
- Never use a flammable spray near the product. This could result in a fire.
- Make sure the power cord is unplugged before removing or installing circuit boards or plugging in or unplugging connectors.
- Always use the interlock switch actuating jig to actuate an interlock switch when a cover is opened or removed. The use of folded paper or some other object may damage the interlock switch mechanism, possibly resulting in an electric shock, injury or blindness.

3. Precautions for Working Environment

- The product must be placed on a flat, level surface that is stable and secure.
- Never place this product or its parts on an unsteady or tilting workbench when servicing.
- Provide good ventilation at regular intervals if a service job must be done in a confined space for a long period time.
- Avoid dusty locations and places exposed to oil mist or steam.
- Avoid working positions that may block the ventilation port of the product.

4. Precautions for Handling Batteries

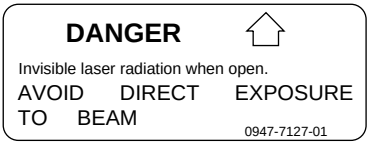
- Replace a rundown battery with the same type as specified in the manufacturer's parts manual.
- Before installing a new battery, make sure of the correct polarity of the installation or the battery could burst.
- Dispose of used batteries according to the local regulations. Never dispose of them at the user's premises or attempt to try to discharge one.

5. Precautions for Laser Beam (Products Employing Laser Only)

- Removing the cover marked with the following caution label could lead to possible exposure to the laser beam, resulting in eye damage or blindness. Be sure to unplug the power cord before removing this cover.
- If removing this cover while the power is ON is unavoidable, be sure to wear protective laser goggles that meet specifications.
- Make sure that no one enters the room when the machine is in this condition.
- When handling the laser unit, observe the “Precautions for Handling Laser Equipment.”

注意- ここを開くと不可視レーザ光が出ます。ビームを直接見たり、触れたりしないでください。
CAUTION- INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
VORSICHT- UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN
ADVARSEL- USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
VARO! AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE ÄLÄ KATSO SÄTEESEEN
ADVARSEL- USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
VARNING- OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD STRÅLEN ÄR FARLIG
注意： 当您打开这里时，会出现肉眼看不见的激光射线，请不要直视或接触光线。

1167P001AA



1144D270AA

Other Precautions

- To reassemble the product, reverse the order of disassembly unless otherwise specified.
- While the product is energized, do not unplug or plug connectors into the circuit boards or harnesses.
- The magnet roller generates a strong magnetic field. Do not bring it near a watch, floppy disk, magnetic card, or CRT tube.
- An air gun and vacuum cleaner generates a strong electrostatic charge that can destroy the ATDC sensor and other sensors. Before cleaning a component with one of these devices, be sure to remove all the sensors. Otherwise, use a blower brush and cloth when cleaning parts.
- When handling circuit boards with MOS ICs, observe the “INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs” (applicable only to the products using MOS ICs).
- The PC Drum is a very delicate component. Observe the precautions given in “HANDLING OF THE PC DRUM” because mishandling may result in serious image problems.
- Note that replacement of a circuit board may call for readjustments or resetting of particular items, or software installation.
- After completing a service job, perform a safety check. Make sure that all parts, wiring and screws are returned to their original positions.
- Check the area surrounding the service site for any signs of damage, wear or need of repair.
- Do not pull out the toner hopper while the toner bottle is turning. This could result in a damaged hopper motor or locking mechanism.
- If the product is to be run with the front door open, make sure that the toner hopper is in the locked position.

Used Batteries Precautions

(ALL Areas)

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

(Germany only)

VORSICHT!

Explosinsgefahr bei unsachgemäßen austausch der batterie.
Ersatz nur durch denselben oder einen vom hersteller empfohlenen ähnlichen typ.
Entsorgung gebrauchter batterien nach angaben des herstellers.

(France)

ATTENTION

Ily a danger d'explosion s'ily a remplacement incorrec de la batterie.
Remplacer uniquement avec une batterie du meme type ou d'un type équivalent recommande par le constructueur.
Mettre au rebut les batteries usageés conformément aux instructions du fabricant.

(Denmark only)

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

(Norway only)

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

(Sweden only)

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

(Finland only)

VAROITUS

Paristo voi räjähtää, los se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä Käytetty paristo valmistajan ohjeiden mukaisesti.

CONTENTS

1. SERVICE INSTRUCTIONS D-1
   1-1. INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs D-1
   1-2. HANDLING OF THE PC DRUM D-1
   1-3. PARTS WHICH MUST NOT BE TOUCHED D-4
      (1) Screws D-4
      (2) Variable Resistors on Board D-4
      (3) Other Screws D-4
2. DISASSEMBLY/REASSEMBLY D-5
   2-1. DOORS, COVERS, AND EXTERIOR PARTS: IDENTIFICATION AND REMOVAL PROCEDURES D-5
   2-2. REMOVAL OF PWBs D-8
   2-3. BELT INSTALLATIONS D-10
   2-4. PAPER TAKE-UP/TRANSPORT SECTIONS D-11
      (1) Removal of the Paper Take-Up Unit D-11
      (2) Removal of the Paper Take-Up Roll Assy D-12
      (3) Cleaning of the Paper Take-Up Roll, Feed Roll, and Separator Roll D-13
      (4) Removal of the Suction Unit D-13
      (5) Disassembly of the Suction Unit D-14
      (6) Disassembly of the Multi Bypass Table D-15
   2-5. OPTICAL SECTION D-20
      (1) Removal of the Lens Drive Cable D-20
      (2) Winding of the Lens Drive Cable D-21
      (3) Removal of the Scanner Drive Cable D-22
      (4) Winding of the Scanner Drive Cable D-24
      (5) Removal of the Scanner D-26
      (6) Cleaning of the Exposure Lamp D-26
      (7) Cleaning of the 1st/2nd/3rd Mirrors D-26
      (8) Cleaning of the Lens and 4th Mirror D-27
      (9) Cleaning of the Optical Section Cooling Fan Filter D-27
   2-6. IMAGING UNIT D-28
      (1) Disassembly, Cleaning, and Replacement of the Imaging Unit D-28
      (2) Cleaning of Main Erase Lamp D-32
      (3) Cleaning of Image Erase Lamp D-33
   2-7. PC DRUM CHARGE CORONA/IMAGE TRANSFER CORONA UNIT D-34
      (1) Cleaning of the PC Drum Charge Corona Housing D-34
      (2) Cleaning of the PC Drum Charge Corona Grid Mesh D-35
      (3) Cleaning of the Comb Electrode D-35
      (4) Cleaning of the Image Transfer/Paper Separator Coronas Wires D-35
      (5) Cleaning of the Image Transfer/Paper Separator Coronas Housing D-36
      (6) Cleaning of the Lower Pre-Image Transfer Guide Plate D-36
      (7) Replacement of the Ozone Filter D-36
   2-8. FUSING UNIT D-37
      (1) Removal of the Fusing Unit D-37
      (2) Cleaning of the Pre-Fusing Guide Plate D-38
      (3) Removal of the Upper Fusing Roller D-38

(4) Cleaning of the Upper Fusing Roller D-40
(5) Cleaning of the Upper Paper Separator Fingers D-40
(6) Cleaning of Fusing Thermistor 1, 2 ..... D-41
(7) Cleaning of the Fusing Thermoswitch D-41
(8) Removal of the Brush Roller D-41
(9) Cleaning of the Brush Roller D-41
(10) Removal of the Lower Fusing Roller D-42
(11) Cleaning of the Lower Fusing Roller D-42
(12) Cleaning of the Lower Paper Separator Fingers D-42
(13) Disassembly of the Exit/Duplex Switching Unit D-43
3. ADJUSTMENT D-46
3-1. JIGS AND TOOLS USED D-46
3-3. ADJUSTMENT OF SWITCHES D-48
(1) Adjustment of Front Door Interlock Switch D-48
3-4. ELECTRICAL/IMAGE ADJUSTMENTS D-49
(1) Adjustment of the Optimum Exposure Setting in the Auto Mode D-49
(2) Adjustment of the Optimum Exposure Setting in the Manual Mode D-50
(3) Adjustment of the ATDC Sensor D-51
(4) Adjustment of the Aperture Blades D-52
(5) Adjustment of the Multi Bypass Table Reference Position D-53
(6) Adjustment of the 1st/2nd Drawer Reference Position D-54
(7) Adjustment of the Zoom Ratio in the Feeding Direction ("A3 Feed Direction Mag. Ratio" of Adjust Mode) D-55
(8) Adjustment of the Leading Edge Registration D-57
(9) Adjustment of the Image Leading Edge Erase Width D-62
(10) Adjustment of the Image Trailing Edge Erase Width D-64
(11) Adjustment of the Image Erase Lamp Position D-66
3-5. OTHER ADJUSTMENTS D-67
(1) Adjustment of the Scanner/Mirrors Carriage Position D-67
(2) Adjustment of the Gap Between the Doctor Blade and Sleeve Roller D-68
(3) Adjustment of the PC Drum Paper Separator Fingers Position D-69
(4) Adjustment of the Original Size Detecting Board D-70
4. MISCELLANEOUS D-71
4-1. INSTALLATION OF ORIGINAL SIZE DETECTING SENSORS FD3/CD2 (OPTION; STANDARD FOR 200V AREAS) D-71
4-2. INSTALLATION OF THE PLUG-IN COUNTER MOUNTING BRACKET (OPTION) D-72

38 SERVICE INSTRUCTIONS

38-1. INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs

The following precautions must be observed when handling P.W. Boards with MOS (Metal Oxide Semiconductor) ICs.

During Transportation/Storage:
- During transportation or when in storage, new P.W. Boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place P.W. Boards in a location exposed to direct sunlight.
- When it becomes absolutely necessary to remove a Board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch the pins of the ICs with your bare hands.

During Replacement:
- Before unplugging connectors from the P.W. Boards, make sure that the power cord has been unplugged from the outlet.
- When removing a Board from its conductive bag or conductive case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the Board.
- Before plugging connectors into the Board, make sure that the power cord has been unplugged from the power outlet.

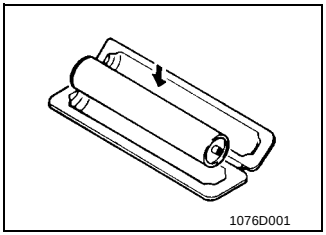
During Inspection:
- Avoid checking the IC directly with a multimeter; use connectors on the Board.
- Never create a closed circuit across IC pins with a metal tool.
- When it is absolutely necessary to touch the ICs and other electrical components on the Board, be sure to ground your body.

38-2. HANDLING OF THE PC DRUM

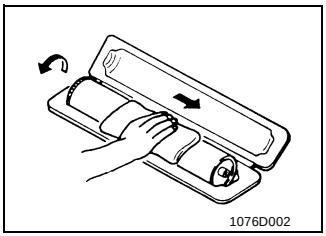
During Transportation/Storage:
- Use the specified carton whenever moving or storing the PC Drum.
- The storage temperature is in the range between –20°C and +40°C.
- In summer, avoid leaving the PC Drum in a car for a long time.

Handling:
- Ensure that the correct PC Drum is used.
- Whenever the PC Drum has been removed from the copier, store it in its container or protect it with a Drum Cloth.
- The PC Drum exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight.
- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not apply chemicals to the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

If, however, the surface is contaminated with fingerprints, clean it using the following procedure.



1. Place the PC Drum into one half of its container.

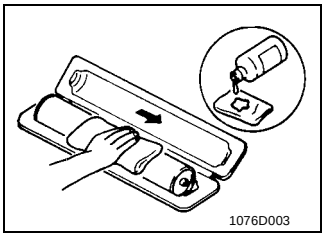


2. Gently wipe the residual toner off the surface of the PC Drum with a dry, Dust-Free Cotton Pad.

A. Rotate the PC Drum so that the area of its surface on which the line of toner left by the Cleaning Blade is present is facing straight up. Wipe the surface in one continuous movement from the rear edge of the PC Drum to the front edge and off the surface of the PC Drum.

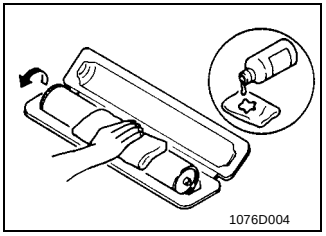
B. Rotate the PC Drum slightly and wipe the newly exposed surface area with a CLEAN face of the Dust-Free Cotton Pad. Repeat this procedure until the entire surface of the PC Drum has been thoroughly cleaned.

✻ At this time, always use a CLEAN face of the dry Dust-Free Cotton Pad until no toner is evident on the face of the Pad after wiping.



3. Soak a small amount of either ethyl alcohol or isopropyl alcohol into a clean, unused Dust-Free Cotton Pad which has been folded over into quarters. Now, wipe the surface of the PC Drum in one continuous movement from its rear edge to its front edge and off its surface one to two times.

✻ Never move the Pad back and forth.



4. Using the SAME face of the Pad, repeat the procedure explained in the latter half of step 3 until the entire surface of the PC Dru has been wiped. Always OVERLAP the areas when wiping. Two complete turns of the PC Drum would be appropriate for cleaning.

NOTES

- *The Organic Photoconductor Drum is softer than CdS and Selenium Drums and is therefore susceptible to scratches.*
- *Even when the PC Drum is only locally dirtied, wipe the entire surface.*
- *Do not expose the PC Drum to direct sunlight. Clean it as quickly as possible even under interior illumination.*
- *If dirt remains after cleaning, repeat the entire procedure from the beginning one more time.*

38-3. PARTS WHICH MUST NOT BE TOUCHED

(1) Screws

Purpose of Application of Red Paint

Red paint is applied to the screws which cannot be readjusted, set, or reinstalled in the field.

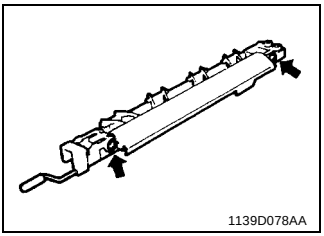
The basic rule is not to remove or loosen the screws to which red paint is applied. In addition, be advised that, if two or more screws are designated as those which must not be touched on a single part, only one representative screw may be marked with red paint.

(2) Variable Resistors on Board

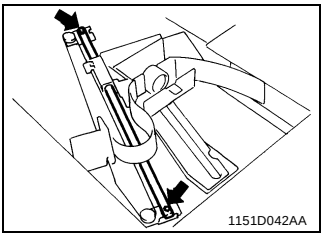
Do not turn the variable resistors on boards for which no adjusting instructions are given in "ADJUSTMENT."

(3) Other Screws

Lower Pre-Image Transfer Guide Plate (2 screws)

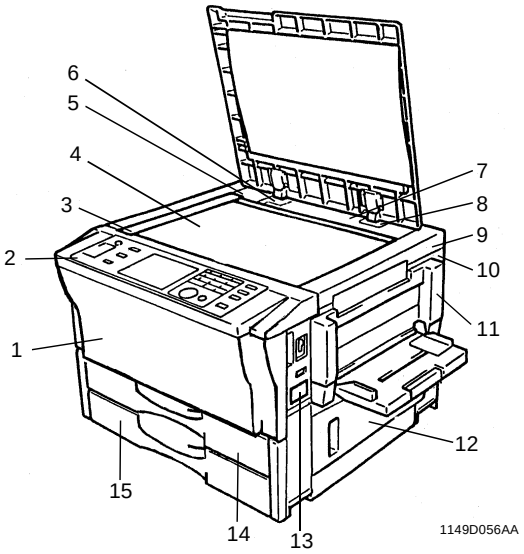


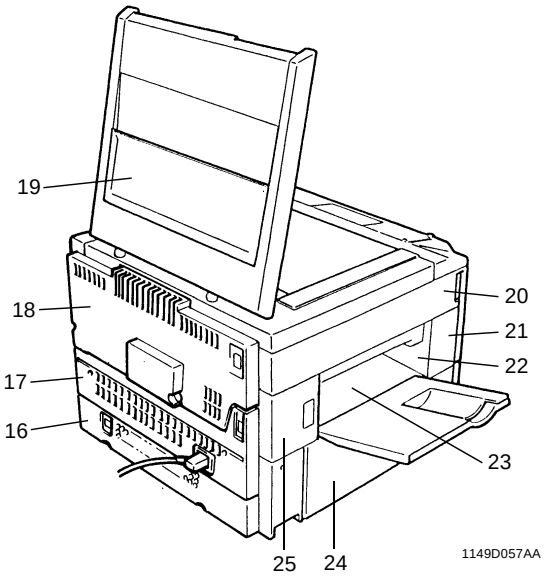
Lens Rail height setting screws (2)



39 DISASSEMBLY/REASSEMBLY

39-1. DOORS, COVERS, AND EXTERIOR PARTS: IDENTIFICATION AND REMOVAL PROCEDURES



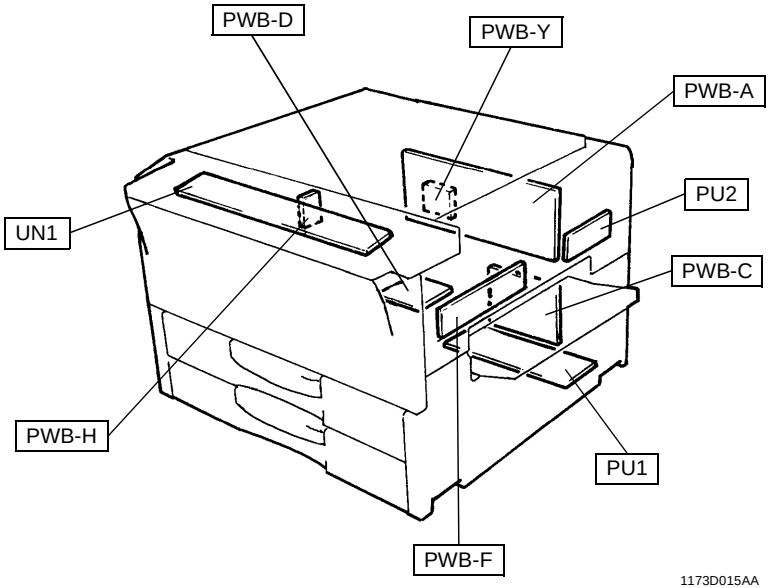


No.	Part Name	Removal Procedure
1	Front Door	Swing down No. 1. → Remove one screw that secures the Belt. → Remove two screws that secure the Front Door (only on one side). → Slide the Door to the side from which the screws have been removed.
2	Control Panel	Open 1. → Loosen two screws that secure the Control panel.
3	Original Scales	Remove two screws that secure the Scales.
4	Original Glass	
5	Rear Upper Cover (Small)	Remove the Original Cover. → Release and swing up the Upper Half of the copier. → Remove the Screw Cover and one mounting screw of No. 5.
6	Left Hinge Cover	Remove the Original Cover. → Remove one screw that secures the Left Hinge Cover.
7	Rear Upper Cover	Remove the Original Cover. → Remove No. 6, 8 and 9. → Remove one screw that secures No. 7.
8	Right Hinge Cover	
9	Upper Right Cover	
10	Right Cover	Remove No. 11. → Remove No. 9. → Remove two screws that secure No. 10.
11	Middle Right Cover	Remove three screws that secure No. 11.
12	Right Door	Open No. 12 and remove it by lifting it up.
13	Counter Cover	Remove No. 14 by snapping if off.
14	1st Drawer	Slide out the Drawer and remove one screw that secures the Stopper at the rear left corner.
15	2nd Drawer	
16	Lower Rear Cover	Remove two screws that secure the Lower Rear Cover.
17	Rear Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove two screws that secure the Rear Cover.
18	Upper Rear Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove three screws that secure the Upper Rear Cover.
19	Original Cover	———

No.	Part Name	Removal Procedure
20	Upper Left Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove four screws that secure the Upper Left Cover.
21	Middle Front Left Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove one screw that secures the Middle Front Left Cover.
22	Front Exit Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 22. → Remove one screw that secures the Front Exit Cover.
23	Rear Exit Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 26. → Remove one screw that secures the Rear Exit Cover.
24	Lower Left Cover	Remove four screws that secure the Lower Left Cover.
25	Middle Rear Left Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove one screw that secures the Middle Rear Left Cover.

39-2. REMOVAL OF PWBs

- When removing a PWB, first go over “PRECAUTIONS FOR HANDLING THE PWBs” contained in SWITCHES ON PWBs and use the removal procedures given on the next page.
- Replacement of a PWB may call for readjustments or resetting of particular items.
- The removal procedures given on the next page omit the steps to unplug connectors and remove the PWB from the PWB support.

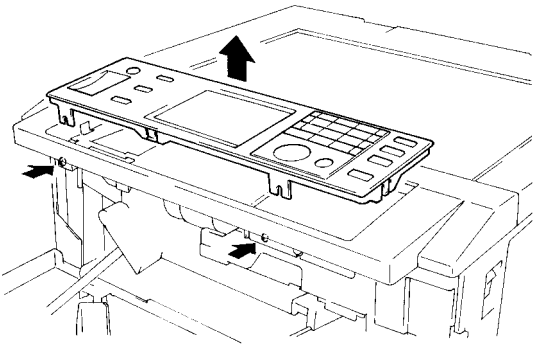


Symbol	Part Name	Removal Procedure
PWB-A	Master Board	Open 1. → Release and swing up the Upper Half of the copier. → Remove 19.
PWB-C	Power Supply Board	Open 1. → Release and swing up the Upper Half of the copier. → Remove 17, 18, and 19. → Remove four screws that secure the Power Supply Unit Cover.
PWB-D	Noise Filter Board	
PWB-F	Motor Drive Board	Open 1. → Remove 11. → Remove 9 and 10. → Remove the Multi Bypass Unit.
PWB-H	AE Sensor Board	Remove 3 and 4. → Remove the optical cover.
PWB-Y	RAM Board	Open 1. → Release and swing up the Upper Half of the copier. → Remove 19.
PU1	Power Supply Unit	Open 1. → Release and swing up the Upper Half of the copier. → Remove 17 and 18.
PU2	Exposure Lamp Regulator	Open 1. → Remove 11. → Remove 9 and 10. → Remove the Multi Bypass Unit.
HV1	High Voltage Unit	Open 1. → Release and swing up the Upper Half of the copier. → Remove 19. → Remove Master Board.
UN1	Control Panel ✻1	Open 1. → Loosen two screws that secure the Control Panel.
UN2	Original Size Detecting Board	Remove 3 and 4. → Remove the optical cover.
UN3	ATDC Sensor	Open 1. → Release and swing up the Upper Half of the copier. → Take out the I/U. → Remove two screws that secure the Synchronizing Roller Guide Unit.

✻ Details of Readjustments/Resetting Involved In Replacement of RAM Board, Original Size Detecting Board and ATDC Sensor.

- When RAM Board is replaced:
  Carry out Memory Clear and then make the Tech. Rep. Program, User's Choice, and Adjust settings again.
- When Original Size Detecting Board is replaced:
  Adjust the Original Size Detecting Board.
- When ATDC Sensor is replaced:
  Discard the developer which had been used until ATDC Sensor was replaced, charge the Developing Unit with fresh starter, and adjust ATDC.

✻1: Removal of Control Panel



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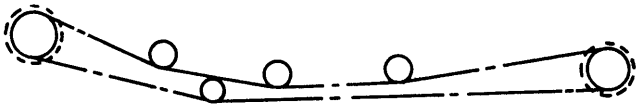
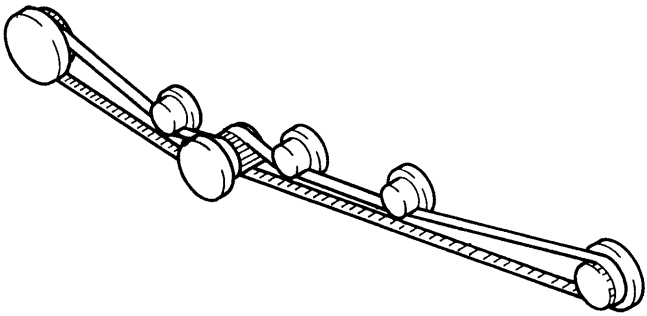
39-3. BELT INSTALLATIONS

- Rear View

Drive/Suction Unit





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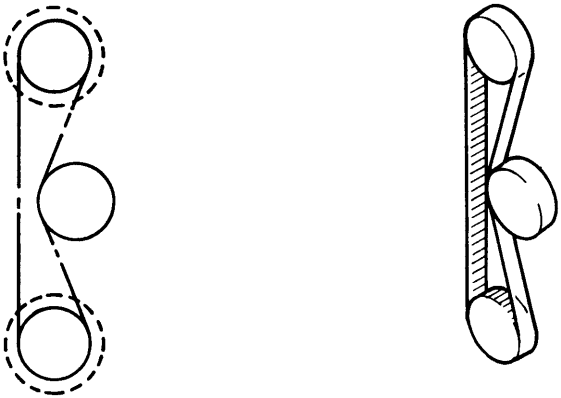
Paper Take-Up Unit



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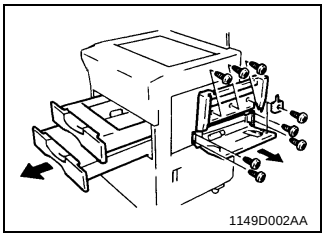
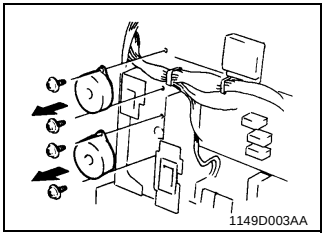
39-4. PAPER TAKE-UP/TRANSPORT SECTIONS

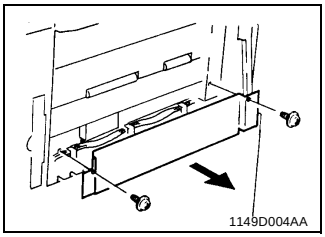
(1) Removal of the Paper Take-Up Unit



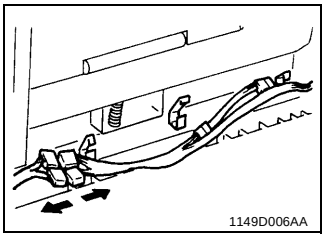
1. Remove the Multi Bypass Table.
2. Slide out the 1st and 2nd Drawers.



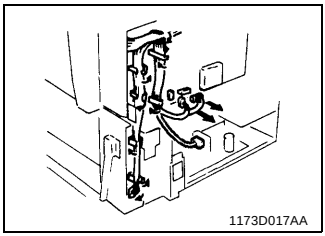
3. Remove the Upper Rear, Rear, and Lower Rear Covers.
4. Remove the 1st and 2nd Drawer Paper Take-Up Motors (two screws each).



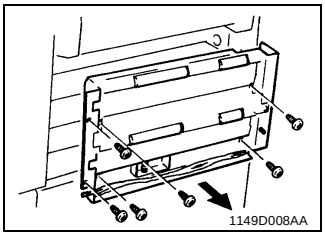
5. Remove the paper take-up unit lower cover (two screws).



6. Unplug the two connectors on the bottom of the paper take-up unit.

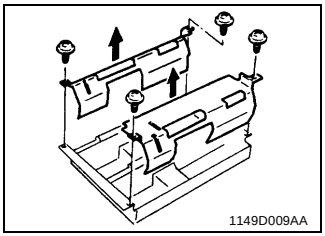


7. Unplug the print jacks (PJ17A, PJ18A, PJ19A) from the Master Board.
8. Unplug the print jack (PJ11C) from the Power Supply Board.

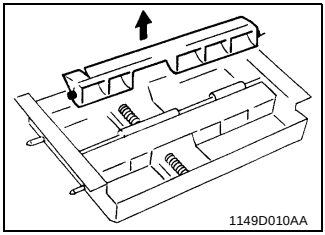


9. Remove the paper take-up unit (six screws).

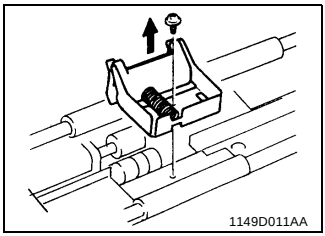
(2) Removal of the Paper Take-Up Roll Assy



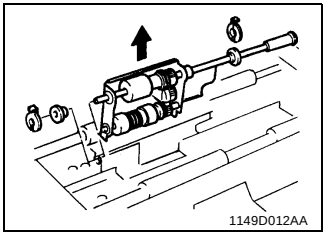
1. Remove paper guide plates A and B (two screws each).



2. Remove paper guide plate C (two springs).

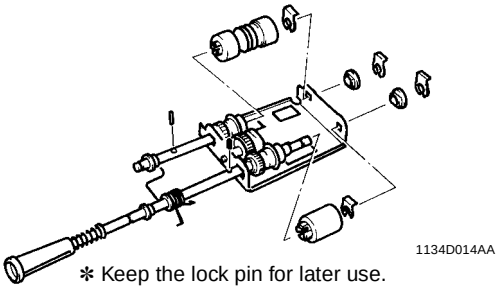


3. Remove the Paper Separator Roll Assy (one screw).



4. Remove two C-clips, one bushing, and the Paper Take-Up Roll Assy.

5. Disassemble the Paper Take-Up Roll/Feed Roll Assy.



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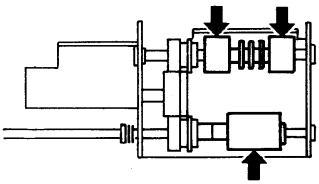
✻ Keep the lock pin for later use.

(3) Cleaning of the Paper Take-Up Roll, Feed Roll, and Separator Roll

1. Remove each Paper Take-Up Roll/Feed Roll Assy.
2. Remove each Paper Separator Roll Assy.
3. Using a soft cloth dampened with alcohol, wipe each roll clean of dirt.

Cleaning the Paper Take-Up Roll/Feed Roll



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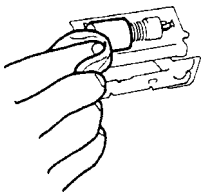
Cleaning the Paper Separator Roll



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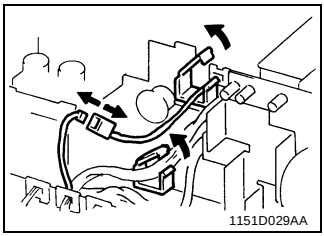
(4) Removal of the Suction Unit



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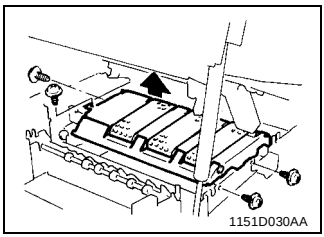
1. Remove the Fusing Unit.
2. Unplug the Suction Fan Motor connector and remove the wire from the clamp.



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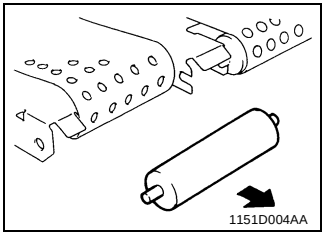
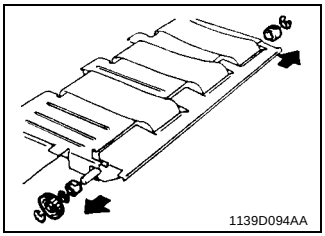
3. Remove four screws to remove the Suction Unit.

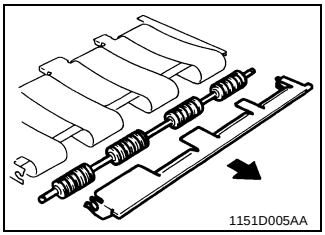
(5) Disassembly of the Suction Unit



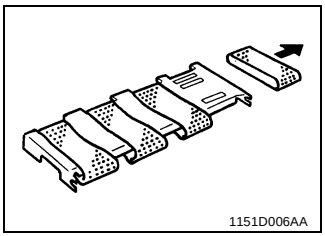
1. Remove the four Suction Drive Rolls and six bushings by pulling them in the direction of the arrow.



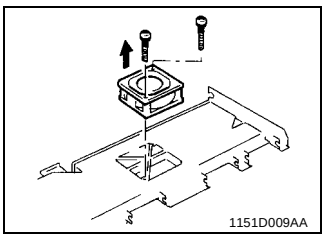
2. Snap off the three E-rings from the Suction Drive Unit.
3. Remove the gear and bushings.



4. Remove the Pre-Fusing Guide Plate.
5. Remove the Suction Drive Unit.

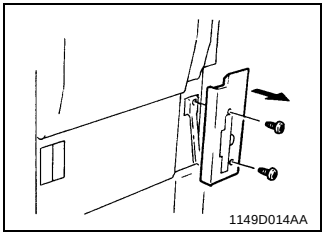


6. Remove the four belts.

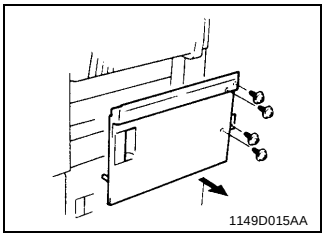


7. Remove the Suction Fan Motor.

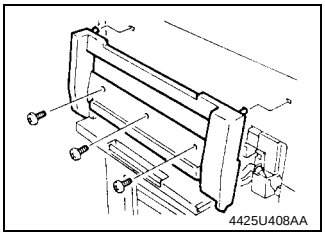
(6) Disassembly of the Multi Bypass Table



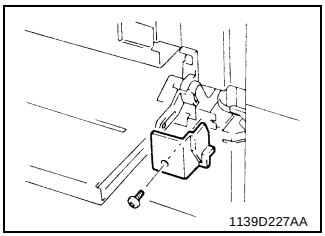
1. Remove the Right Lower Rear Cover (two screws).



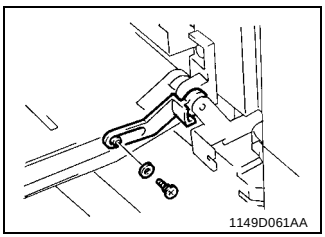
2. Remove the four screws that secure the Right Door; then, remove the Right Door.



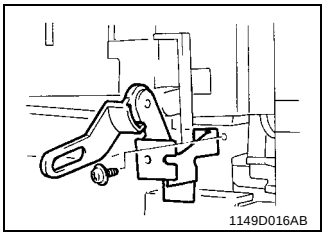
3. Remove three screws and the Large Cover.

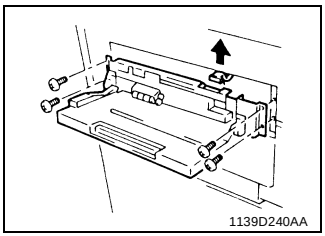


4. Remove one screw and the Small Cover.

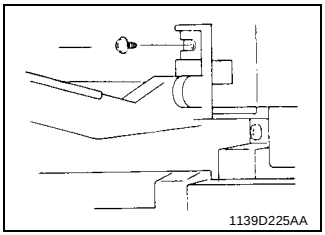


5. Remove two screws and the Guide Lever Unit.

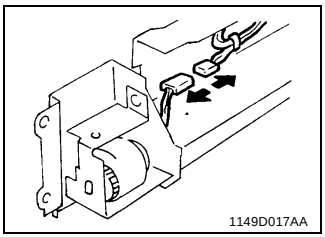




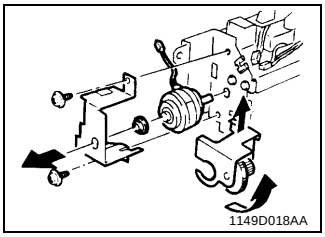
6. Remove four screws and the Multi Bypass Table.
7. Unplug the Multi Bypass Table connector.



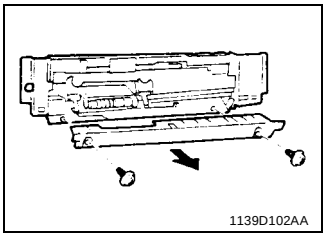
8. Remove one screw and the Multi Bypass Table.



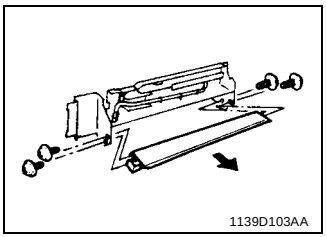
9. Unplug one connector.



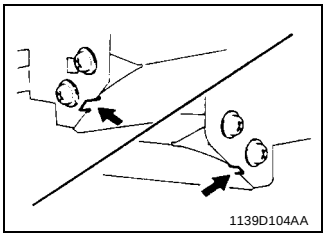
10. Remove two screws and the Clutch Mounting Bracket.
11. Remove the Tension Unit.



12. Remove two screws and the Lower Guide.

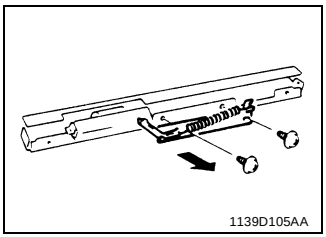


13. Remove four screws and the Separator Guide Plate Unit.

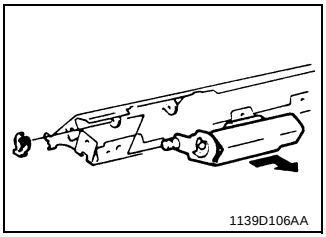


NOTE

When reinstalling the Separator Guide Plate Unit, press the parts shown on the left up against the copier frame (both at front and rear).



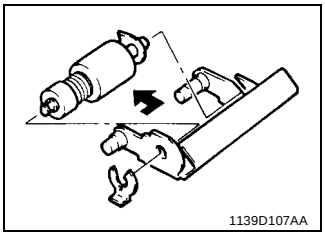
14. Remove two screws and the Lever.



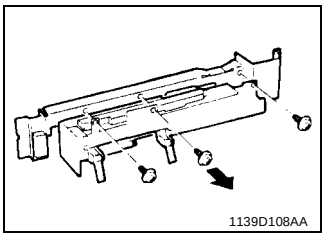
15. Snap off one C-clip and remove the Separator Unit.

NOTE

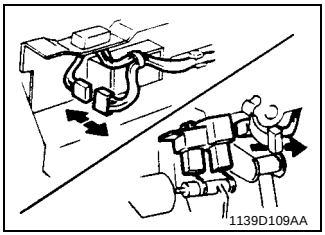
- *The space is narrow, try using tweezers or forceps when reinstalling the C-clip.*



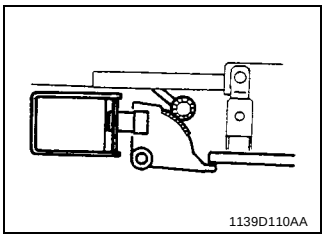
16. Snap off one C-clip and remove the Separator Roll Assy.



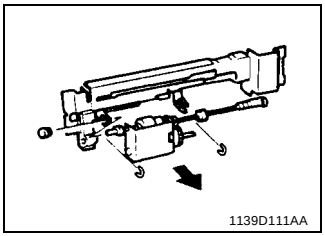
17. Remove three screws and the Solenoid Mounting Bracket.



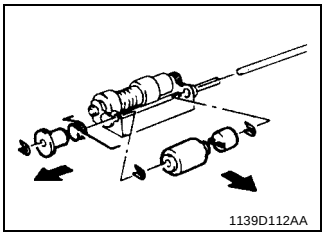
18. Unplug one solenoid connector.
19. Unplug one photosensor connector and remove the harness from the clamp.



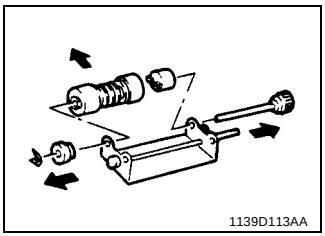
NOTE
When reinstalling the Solenoid Mounting Bracket, make sure that the Solenoid is in the deenergized position.



20. Snap off the two C-clips to remove the Paper Take-Up Roll Unit.



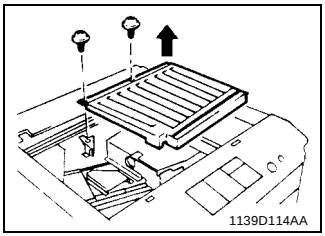
21. Snap off the three C-clips to remove the Paper Feed Roll.



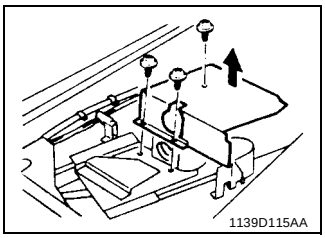
22. Snap off one C-clip and remove the Paper Take-Up Roll.

39-5. OPTICAL SECTION

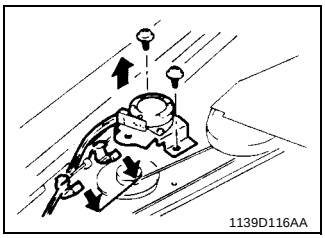
(1) Removal of the Lens Drive Cable



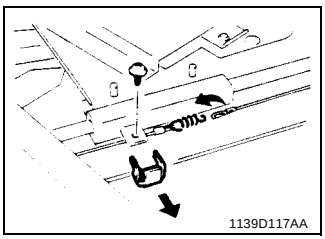
1. Remove two screws and the Optical Section Cover.



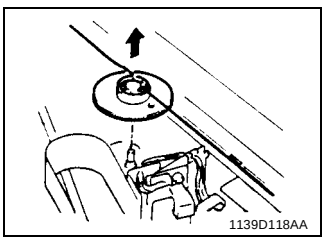
2. Remove three screws and the Lens Cover.



3. Remove two screws, two clamps and the Lens Motor Unit.

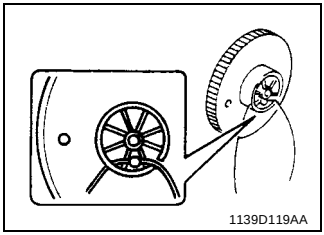


4. Remove one screw and the Cable Fixing Bracket.
5. Remove the spring.

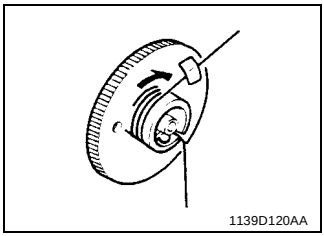


6. Remove the Cable Drive Gear and the Lens Drive Cable.

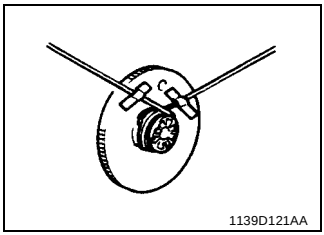
(2) Winding of the Lens Drive Cable


1139D119AA

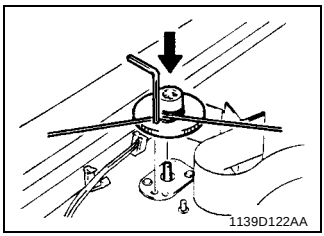
1. Hold the Cable Drive Gear in position with its Bead at the bottom.


1139D120AA

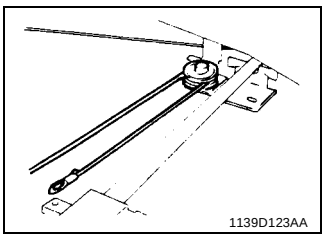
2. Wind the shorter length of the Cable three turns clockwise around the Cable Drive Gear, working from the back to the front side. Then tape it.


1139D121AA

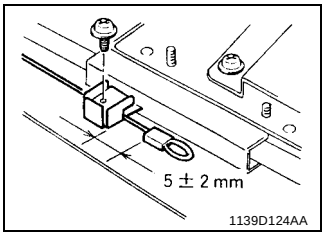
3. Wind the longer length of the Cable five turns counterclockwise around the Cable Drive Gear, working from the front to back side. Then tape it.


1139D122AA

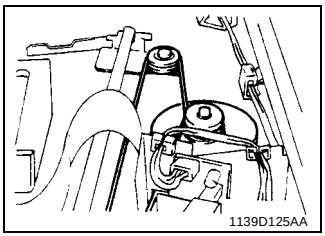
4. Slide the Cable Drive Gear onto its shaft and insert a wrench into the hole to position the Cable Drive Gear.


1139D123AA

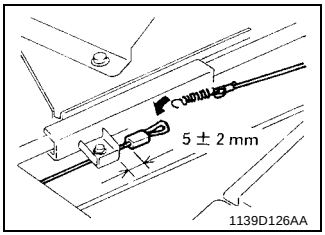
5. Pass the longer length of the Cable through the U-shaped hole in the Light Blocking Plate and wind it around the Pulley farther away from the Cable Drive Gear.



6. Temporarily secure the longer length of the Cable to the Cable Fixing Bracket, ensuring a distance of 5 ± 2 mm for the dimension shown on the left.



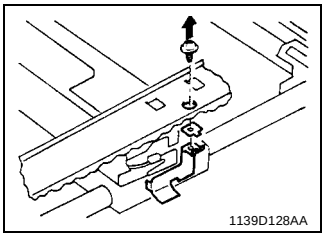
7. Wind the shorter length of the Cable around the Pulley which is nearer to the Cable Drive Gear.



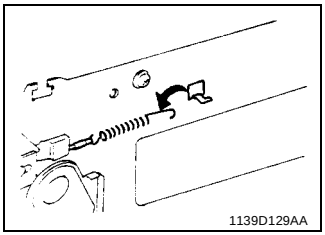
8. Hook the spring onto the shorter length of the Cable and pull it to hook onto the longer length of the Cable.
9. Check that the dimension noted in step 6 above measures 5 ± 2 mm. Then, secure the Cable Fixing Bracket.
10. Remove the wrench and peel off the two pieces of tape.

(3) Removal of the Scanner Drive Cable

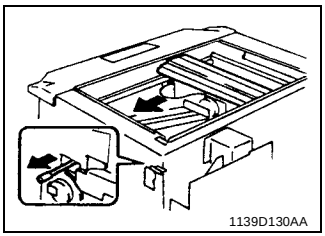
- Remove the Original Cover, Original Scales, and Original Glass.
- Remove the Middle Right, Upper Right, Right, Upper Left, and Upper Rear Covers.
- Remove the Left and Right Hinge Covers, Rear Upper Cover (Small), and Rear Upper Cover.



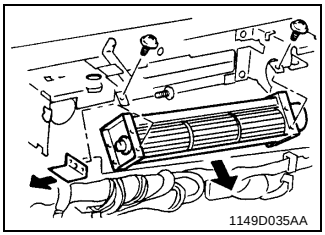
1. Align the Scanner with the rectangular hole in the upper copier frame and remove the screw from the Scanner Fixing Bracket.
2. Remove the Fixing Bracket.



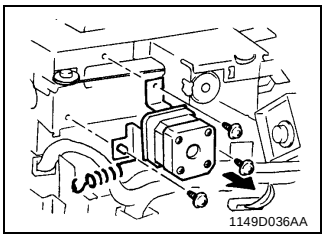
3. Unhook the spring and remove the length of the cable on the right (looking at the copier from the rear).



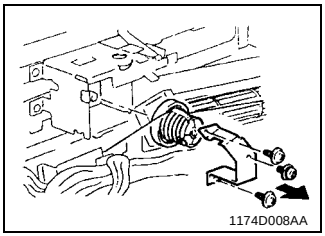
4. Move the 2nd/3rd Mirrors Carriage toward the Scanner Drive Gear so that the cable slacks off and then remove the length of cable on the left (looking at the copier from the rear).
5. Remove Master Board (four screws).



6. Remove Optical Section Cooling Fan Motor (two screws).
7. Remove the ADF fixing bracket (one screw).



8. Unhook the spring and remove Scanner Motor (three screws).

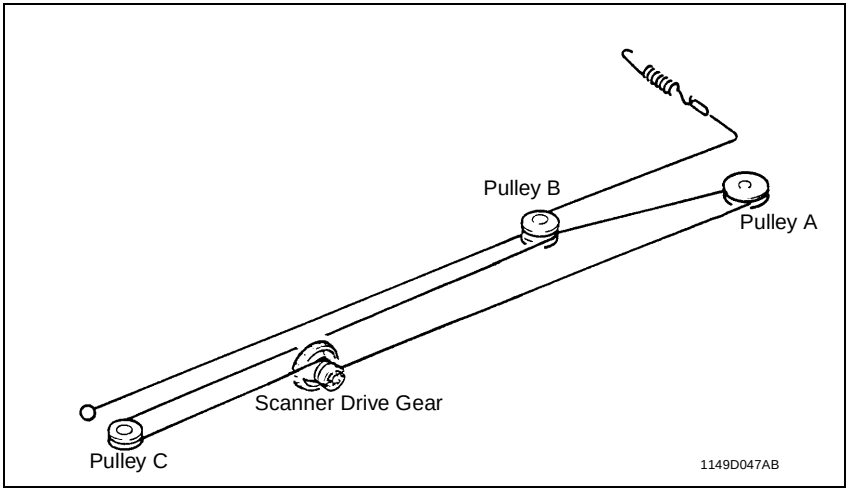


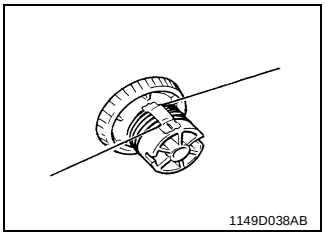
9. Snap off the Support Plate and remove the Scanner Drive Pulley.

(4) Winding of the Scanner Drive Cable

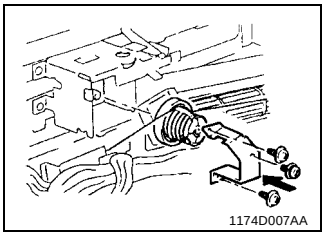
✻ Remark

Whenever the Scanner Drive Cable has been rewound, be sure to make the “Adjustment of the Scanner/Mirrors Carriage Position.”

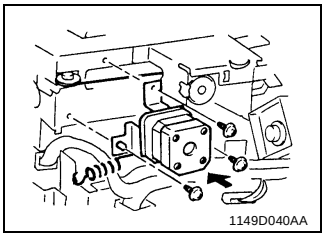




1. (With reference to the center of the entire length of the cable) Wind one length of the cable 5 times counterclockwise around the Pulley, starting with the end of the D-cut on the pulley shank and working from the front to the back side. Then, secure the cable with tape.



2. Mount the Cable Drive Pulley on the Pulley Shaft and fit the Support Plate.

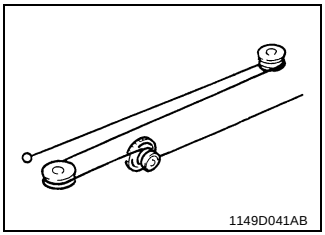


3. Fit the belt in position. Then secure Scanner Motor and Spring (three screws).

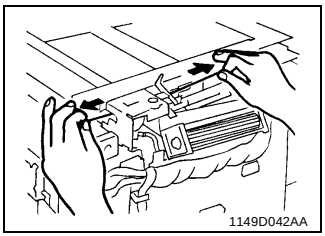
NOTE

First, loosely secure the Scanner Motor and hook the Spring in position.

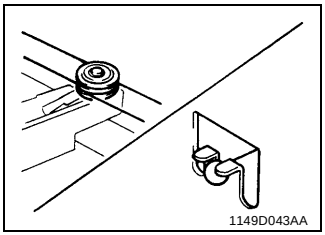
Then fix the Scanner Motor to the position where it is shifted by the Spring tension.



4. Hook the length of cable on the left (looking at the copier from the rear), around Pulleys C and B and secure it to the frame.

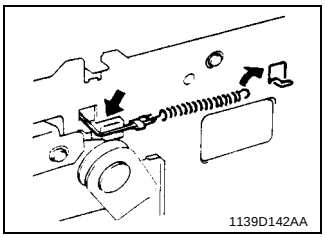


5. Peeling off the tape, pull the length of cable on the right (looking at the copier from the rear) and hook it onto Pulleys A and B.

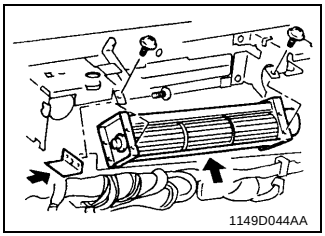


NOTE

- *Hook the length of cable on the left (looking at the copier from the rear) onto the lower groove in Pulley B. (Fit the round terminal as illustrated on the left.)*
- *Hook the length of cable on the right (looking at the copier from the rear) onto the upper groove in Pulley B.*

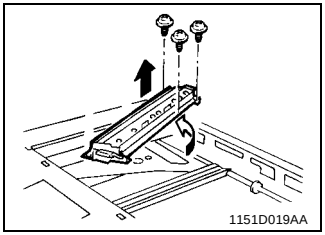


6. Fit the cable into the groove in the cable guide and hook the spring.
7. Mount Master Board (four screws).



8. Fit the ADF fixing bracket (one screw).
9. Mount Optical Section Cooling Fan Motor (two screws).

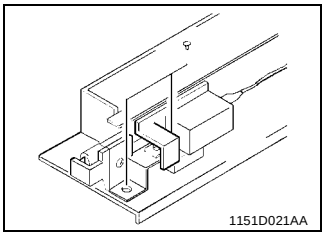
(5) Removal of the Scanner



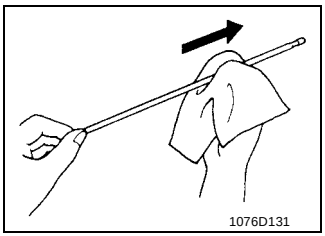
Turn the Scanner Drive Gear to move the Scanner to the right side of the copier. Then, remove three screws and the Scanner.

NOTE
Mount the Scanner so that it touches against the Positioning Plate of the Shaft Stand.

(6) Cleaning of the Exposure Lamp



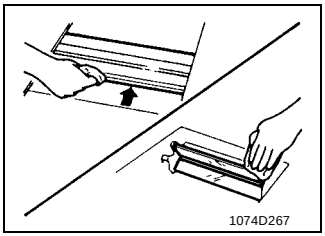
1. Remove two screws and the Exposure Lamp Terminal.
2. Slide out the Exposure Lamp.



3. Using a soft cloth dampened with alcohol, clean the Lamp by wiping its surface gently in one direction.

NOTE
When reinstalling the Lamp, use care not to allow the protruding navel of the Lamp to hit against the Lamp Reflector and that the protruding navel points toward the opening in the Lamp Reflector.

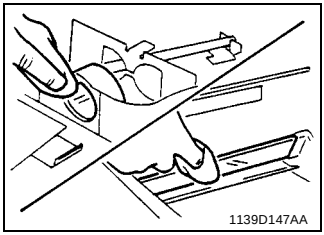
(7) Cleaning of the 1st/2nd/3rd Mirrors



Turn the Scanner Drive Gear to move the Scanner away from the Mirrors. Then, wipe clean the 1st/2nd/3rd Mirrors with a soft cloth.

NOTE
An alcohol-dampened cloth may be used if the Mirror is seriously contaminated.

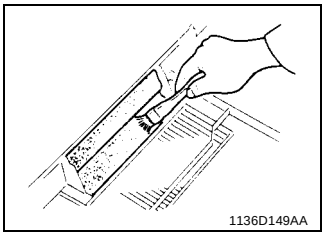
(8) Cleaning of the Lens and 4th Mirror



Gently dust off the surface of the Lens and 4th Mirror by using a dry soft cloth.

NOTE
An alcohol-dampened cloth may be used if the Lens or Mirror is seriously contaminated.

(9) Cleaning of the Optical Section Cooling Fan Filter

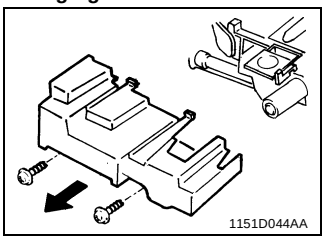


1. Remove the Upper Rear Cover (three screws).
2. Clean the cooling fan filter using a brush or vacuum cleaner.

39-6. IMAGING UNIT

(1) Disassembly, Cleaning, and Replacement of the Imaging Unit

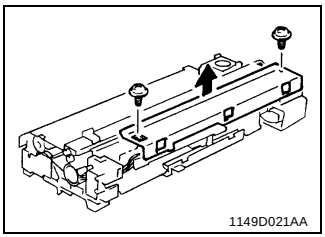
Changing the Starter



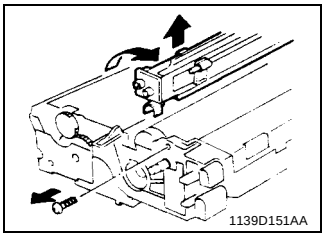
1. Remove the Imaging Unit from the copier.
2. Remove the Imaging Unit Cover (two screws).

NOTE

- *When removing the Imaging Unit, do not hold onto the Main Erase Lamp end (as a deformed PC Drum Paper Separator Finger results).*

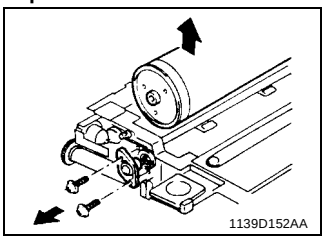


3. Remove the Main Erase Lamp (two screws).



4. Remove the PC Drum Charge Corona (one screw).

Replacement of the PC Drum

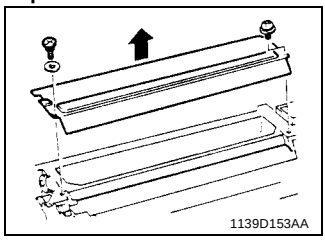


5. Remove two screws and one Drum Pin to remove the PC Drum.

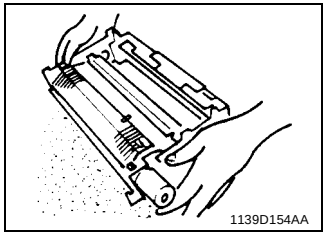
NOTE

Whenever the PC Drum has been replaced, be sure to make the "Adjustments of the Optimum Exposure Setting in the Manual and Auto Mode."

Replacement of the Toner Scattering Prevention Plate

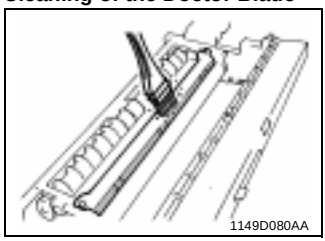

1139D153AA

6. Remove one screw, one shoulder screw and the Toner Scattering Prevention Plate.


1139D154AA

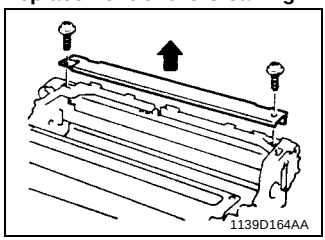
7. Tilt the Developing Unit to remove the developer.

Cleaning of the Doctor Blade

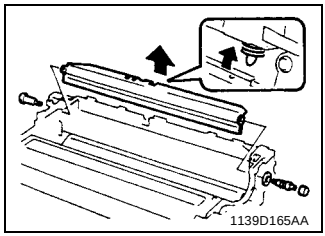

1149D080AA

8. Clean the Surface of Doctor Blade using a brush or vacuum cleaner.

Replacement of the Cleaning Blade


1139D164AA

9. Remove two screws and the Lid.


1139D165AA

10. Remove the spring.
11. Remove two screws, one spring, one cap and the Cleaning Blade. Replace it with a new one.

NOTE
When the Cleaning Blade has been replaced, apply toner to the entire surface of the new Cleaning Blade.

Applying Toner to Cleaning Blade

Apply toner to the entire surface of the Cleaning Blade.
(Do not forget to coat the surfaces on both ends.)

↓

Install the PC Drum.

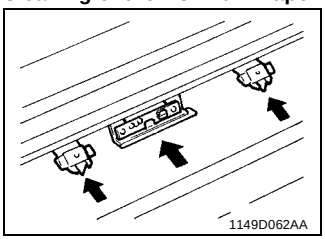
↓

Apply a thin coat of toner to the PC Drum.

↓

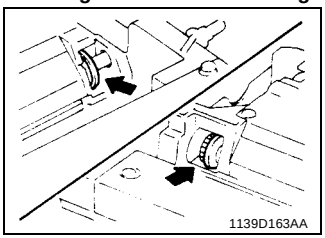
Turn the PC Drum 1/2 turns backward, then turn it one complete turn forward.

Cleaning of the PC Drum Paper Separator Fingers and AIDC Sensor



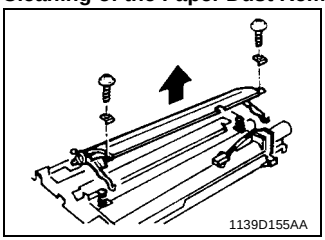
12. Using a soft cloth dampened with alcohol, wipe clean the Paper Separator Fingers.
13. Using a brush or a soft cloth dampened with alcohol, clean the AIDC Sensor.

Cleaning of the Ds Positioning Collars



14. Using a soft cloth dampened with alcohol, wipe clean the Ds Positioning Collars.

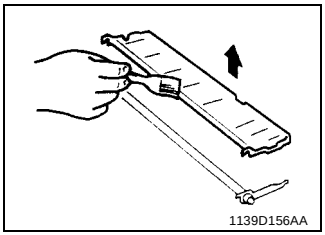
Cleaning of the Paper Dust Remover



15. Remove two screws, two compression springs and the Synchronizing Roller Unit.

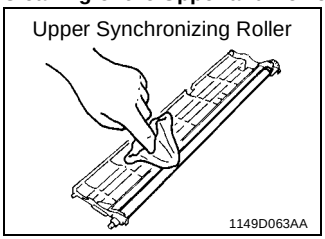
NOTE

When removing the Synchronizing Roller Unit, use care not to lose the compression springs. At reinstallation, fit the close-coiled end of the springs to the bosses on the Imaging Unit.

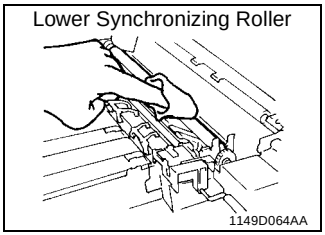


16. Remove the Synchronizing Roller.
17. Using a brush, whisk the dust and dirt off the Filter.

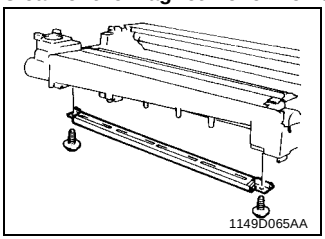
Cleaning of the Upper and Lower Synchronizing Rollers



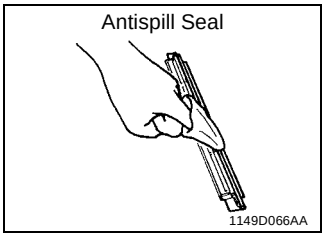
18. Using a brush or a soft cloth dampened with alcohol, clean the Upper and Lower Synchronizing Rollers.



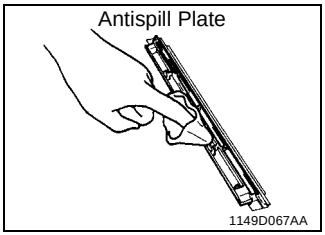
Clean of the Magnet Roller Lower Antispill Seal and Antispill Plate

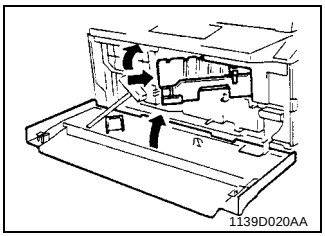


19. Remove two screws and Magnet Roller Lower Antispill Seal and Antispill Plate.



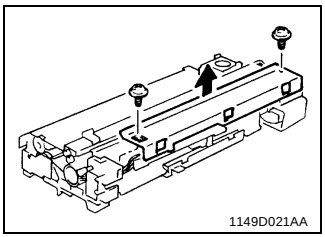
20. Using a soft cloth dampened with alcohol, clean the Antispill Seal and Antispill Plate.



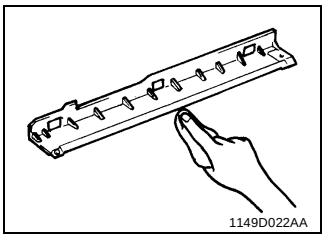


21. Refit the parts to the Imaging Unit and reinstall the Imaging Unit in the copier.
22. Load fresh starter and make the ATDC adjustment.

(2) Cleaning of Main Erase Lamp



1. Remove the Imaging Unit.
2. Remove Main Erase Lamp (two screws).

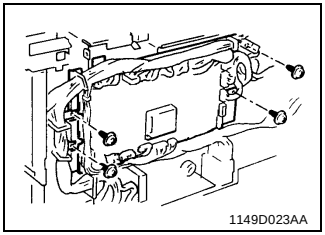


3. Using a brush or a soft cloth dampened with alcohol, clean Main Erase Lamp.

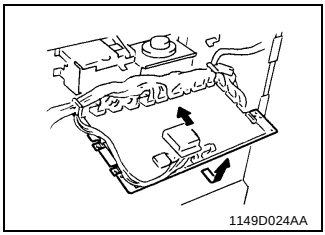
NOTE

- *Use care not to touch the lamp with bare hands.*

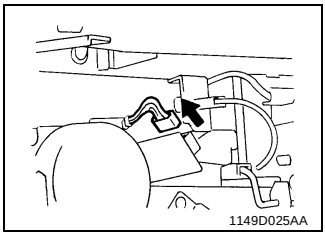
(3) Cleaning of Image Erase Lamp


1149D023AA

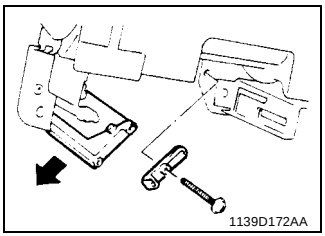
1. Remove Master Board (four screws).


1149D024AA

2. Insert Master Board into the copier to secure it.


1149D025AA

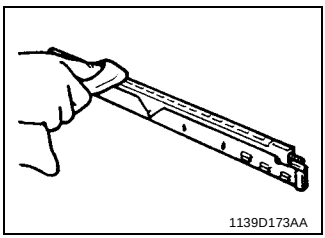
3. Go to the rear of the copier and unplug one Image Erase Lamp connector.


1139D172AA

4. Remove the Imaging Unit.
5. Remove Image Erase Lamp (one screw).

NOTE

- *When removing Image Erase Lamp, use care not to lose the pressure spring in the rear.*


1139D173AA

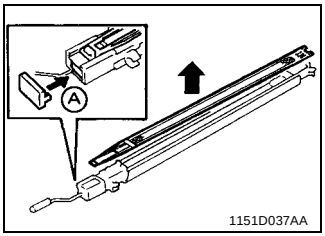
6. Using a brush or a soft cloth dampened with alcohol, wipe clean Image Erase Lamp.

NOTE

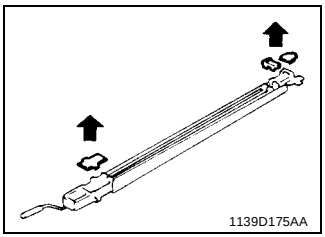
- *After Image Erase Lamp has been cleaned, make the "Adjustment of the Image Erase Lamp Position."*

39-7. PC DRUM CHARGE CORONA/IMAGE TRANSFER CORONA UNIT

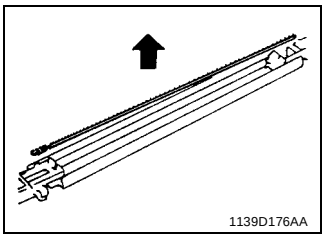
(1) Cleaning of the PC Drum Charge Corona Housing



1. Remove the Imaging Unit.
2. Remove Main Erase Lamp (two screws).
3. Remove one screw and PC Drum charge Corona Unit.
4. Press the Mesh Holder on the front of the Corona Unit in the direction of arrow A to remove the Grid Mesh.

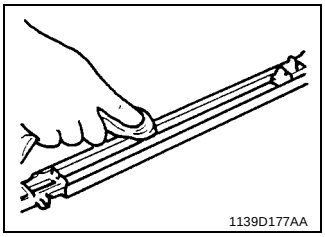


5. Remove the Cleaning Pad Cover.
6. Remove the End Caps from the front and rear ends of the Unit.



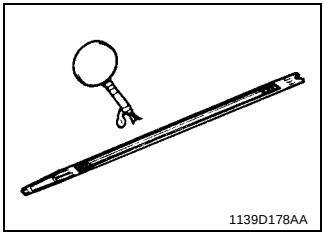
7. Remove the Comb Electrode.

NOTE
Use care not to deform the Electrode. When removing it, first snap off its spring end.



8. Using a soft cloth dampened with alcohol, wipe the Housing clean of dirt.

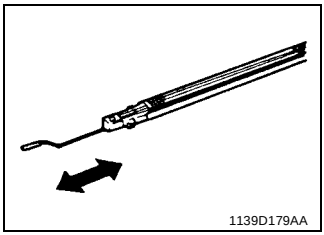
(2) Cleaning of the PC Drum Charge Corona Grid Mesh



Blow all foreign matter off the Grid with a blower brush.

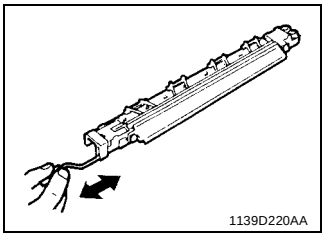
NOTE
If the blower brush is not effective in cleaning the Grid, use a soft cloth dampened with alcohol to clean serious contamination.

(3) Cleaning of the Comb Electrode

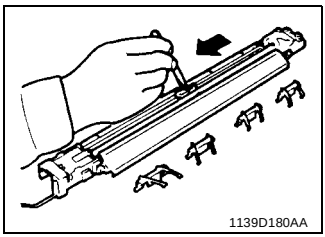


Clean the Comb Electrode using the Corona Unit Cleaning Lever.

(4) Cleaning of the Image Transfer/Paper Separator Coronas Wires

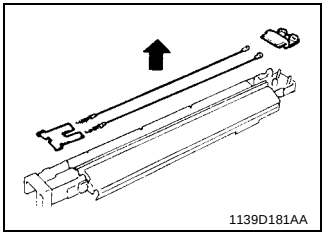


1. Clean the Image Transfer Corona Wire using the Corona Wire Cleaning Lever.



2. Remove the four Paper Guides.
3. Dampen a soft cloth with alcohol, hold it with a pair of tweezers, and wipe the Paper Separator Corona Wire gently in one direction. (Go from the hook to spring end.)

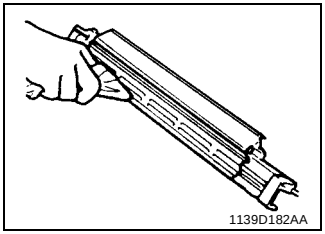
(5) Cleaning of the Image Transfer/Paper Separator Coronas Housing



1. Remove the four Paper Guides.
2. Remove the two End Caps.
3. Remove the Image Transfer and Paper Separator Corona Wires.

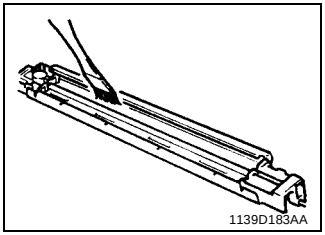
NOTE

When removing the Wire, unhook the spring end first and use care to prevent breaking and deformation. (Use a pair of tweezers.)
Keep the Corona Wire Cleaning Lever (for the Image Transfer Corona) pressed all the way back in. Do not attempt to remove the Lower Pre-Image Transfer Guide Plate as it has been adjusted for correct height.



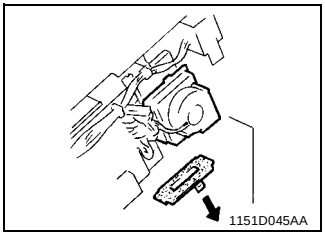
4. Using a soft cloth dampened with alcohol, wipe the Housing clean of dirt.

(6) Cleaning of the Lower Pre-Image Transfer Guide Plate



Using a brush, whisk dust off the Lower Pre-Image Transfer Guide Plate.

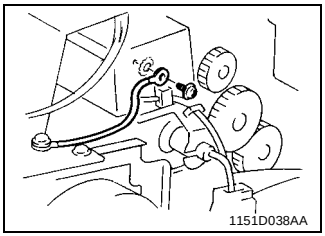
(7) Replacement of the Ozone Filter



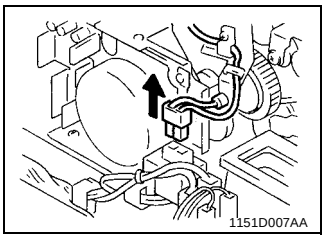
1. Press the Filter Cover Bracket in the direction of the arrows and pull it off.
2. Remove the Filter and replace it with a new one.

39-8. FUSING UNIT

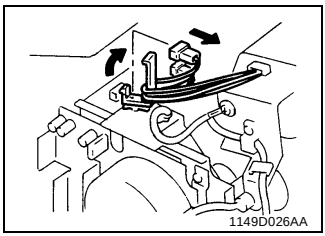
(1) Removal of the Fusing Unit



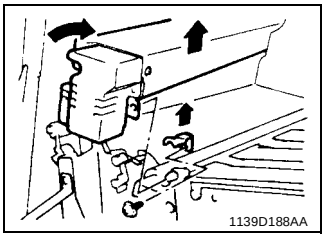
1. Remove one screw and the Ground Wire of the Fusing Unit.



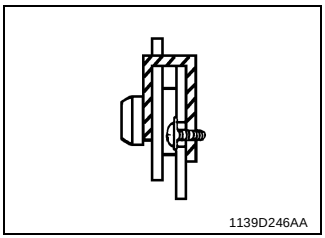
2. Unplug the Fusing Heater Lamp connector and remove the wires from the clamp.



3. Unplug the Fusing Thermistor connectors and remove the wires from the two clamps.

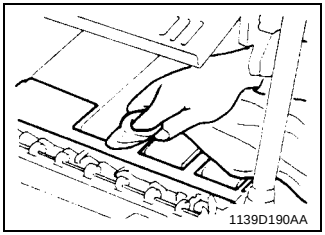


4. Remove one screw and the Fusing Unit Locking Plate.
5. Turning it in the direction of the arrow, remove the Fusing Unit.



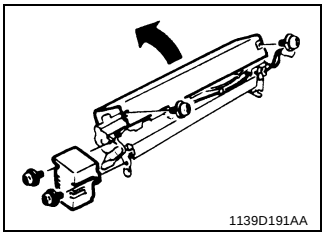
NOTE
When reinstalling the Fusing Unit, install the Locking Plate as illustrated on the left.

(2) Cleaning of the Pre-Fusing Guide Plate

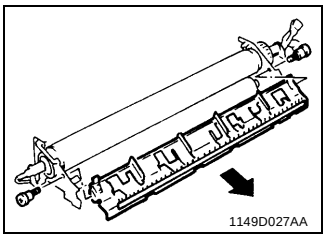


Using a soft cloth dampened with alcohol, wipe clean the Guide Plate.

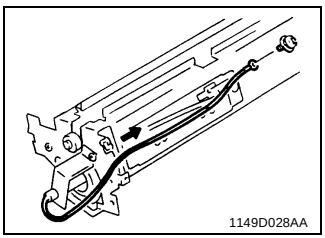
(3) Removal of the Upper Fusing Roller



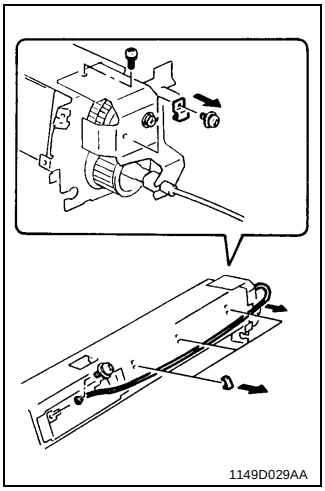
1. Remove two screws and the Fusing Unit Front Cover.
2. Remove two screws and the Fusing Unit Upper Cover.



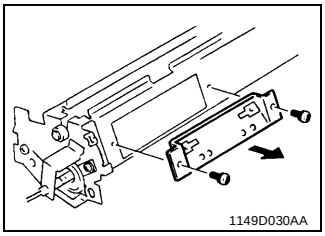
3. Remove two screws and the Upper Paper Separator Fingers Unit.



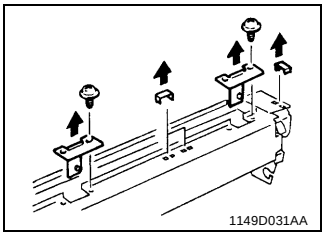
4. Remove the screw and clamp that secure the Lamp harness at the front of the copier.



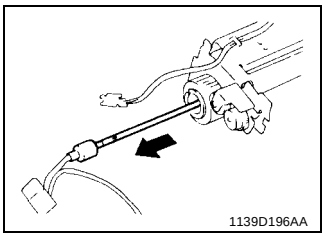
5. Remove the rear lamp harness and harness clamps (four).
6. Remove the mounting bracket (one screw).



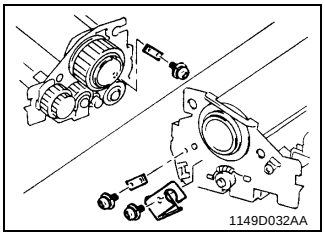
7. Remove the Fusing Thermoswitch (two screws).



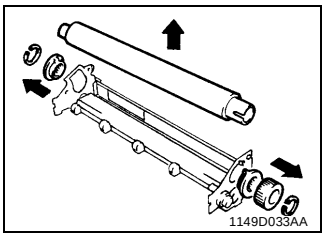
8. Remove three Cord Holders of Fusing Thermistor 1, 2.
9. Remove one screw and the Fusing Thermistor.



10. Slide out the Fusing Heater Lamp.

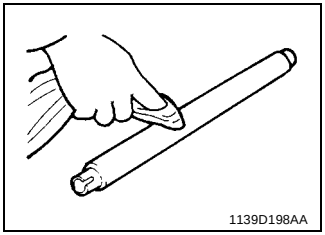


11. Remove two roller shaft fixing brackets and one Fusing Heater Lamp fixing bracket.



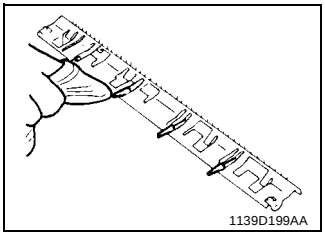
12. Remove two C-clips.
13. Remove one spur gear.
14. Remove two bushings.
15. Remove the Upper Fusing Roller.

(4) Cleaning of the Upper Fusing Roller



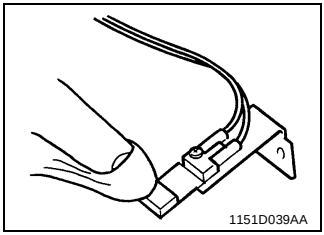
Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Upper Fusing Roller.

(5) Cleaning of the Upper Paper Separator Fingers



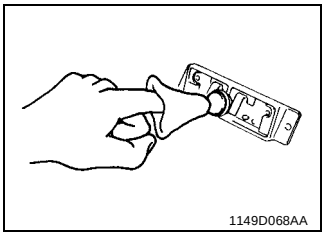
Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Upper Separator Fingers.

(6) Cleaning of Fusing Thermistor 1, 2



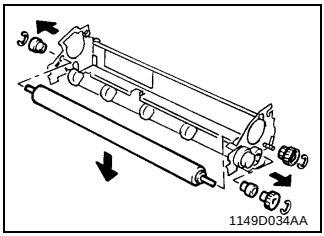
Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Thermistor.

(7) Cleaning of the Fusing Thermoswitch



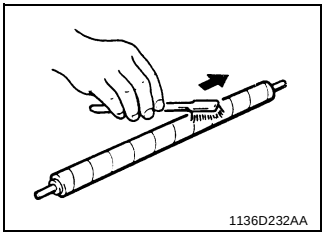
Using a soft cloth dampened with alcohol or silicone oil clean the Fusing Thermoswitch.

(8) Removal of the Brush Roller



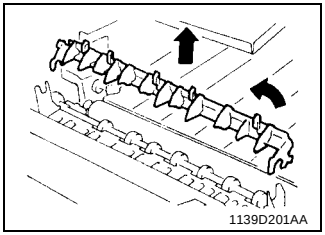
1. Snap off three E-rings and remove two gears.
2. Remove the bushings (front and rear) and the Brush Roller.

(9) Cleaning of the Brush Roller

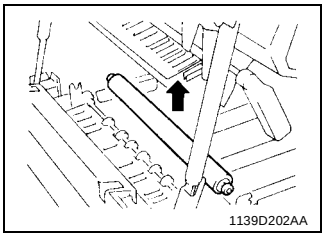


Using a brush, clean the Brush Roller.

(10) Removal of the Lower Fusing Roller



1. Turning it in the direction of the arrow, remove the Lower Separator Fingers Unit.

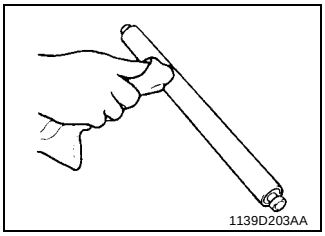


2. Remove the Lower Fusing Roller

NOTE

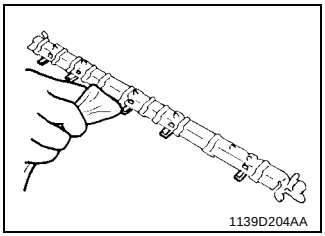
- *Different types of pressure springs are used at the front and rear ends of the Fusing Unit. They are identified by the color on their ends as detailed below. Make sure that the correct one is placed at the correct position.*
  Yellow spring end: Front
  Blue spring end: Rear

(11) Cleaning of the Lower Fusing Roller



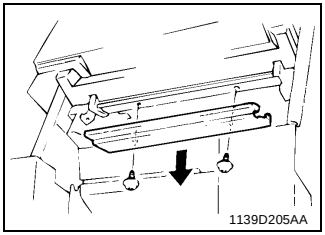
Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Lower Fusing Roller.

(12) Cleaning of the Lower Paper Separator Fingers

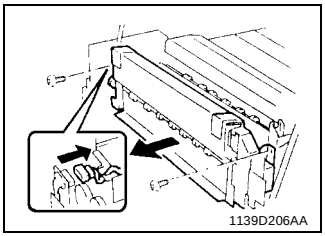


Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Lower Separator Fingers.

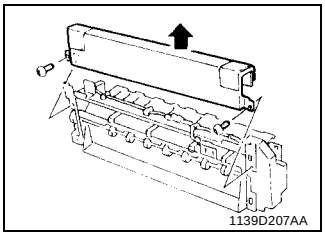
(13) Disassembly of the Exit/Duplex Switching Unit



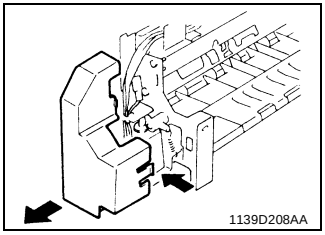
1. Remove two screws and the Upper Guide Plate.



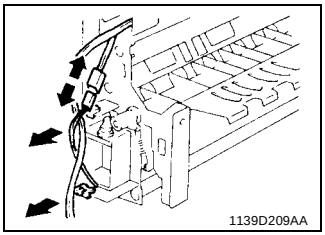
2. Remove two screws and the Exit/Duplex Switching Unit.
3. Unplug one connector.



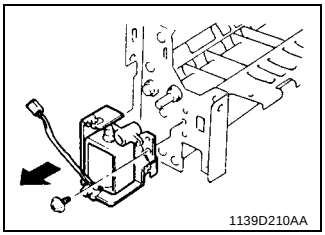
4. Remove two screws and the Cover.



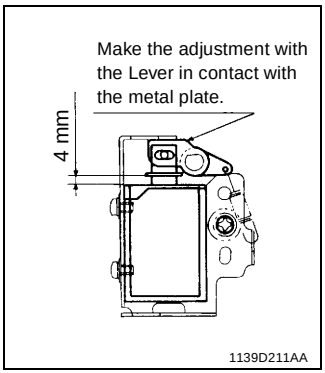
5. Remove the Solenoid Cover by unhooking its catches at three places.



6. Unplug the solenoid connector.
7. Remove the harness from the Solenoid Unit clamps at two places.

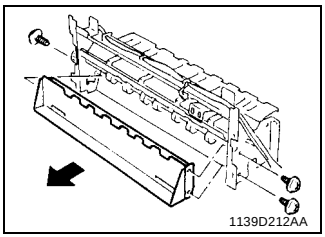


8. Remove one screw and the Solenoid Unit.

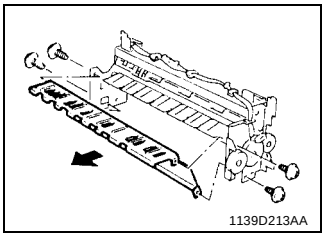


NOTE

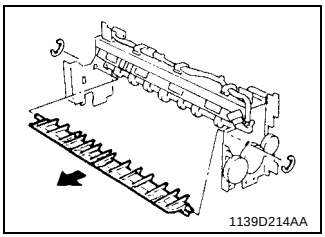
If the solenoid has been removed from the Solenoid Unit, make the adjustment shown on the left with the Solenoid Unit installed in the Exit/Duplex Switching Unit.



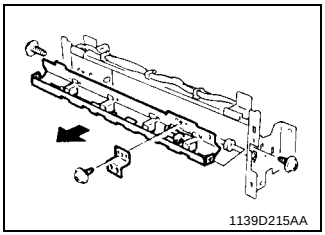
9. Remove three screws and the Copy Tray Holder.



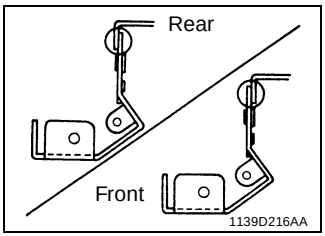
10. Remove four screws and the Lower Guide.



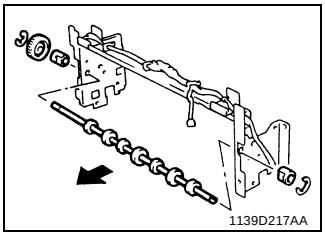
11. Snap off two E-rings to remove the Exit/Duplex Switching Plate.



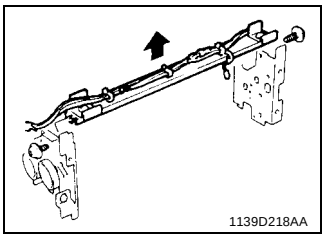
12. Remove one screw and the Photoswitch Mounting Bracket.
13. Remove two screws and the Exit Rolls Mounting Bracket Unit.



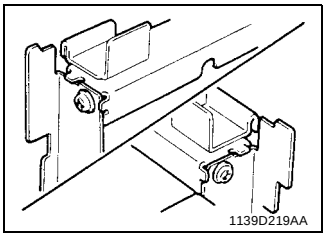
NOTE
When reinstalling the Exit Rolls Mounting Bracket Unit, make sure that the Reinforcement Plate Unit is in contact with the Exit Rolls Mounting Bracket Unit as shown on the left.



14. Snap off two E-rings to remove the Exit Roller.



15. Remove the harness from the clamp.
16. Remove two screws and the Reinforcement Plate Unit.



NOTE
When reinstalling the Reinforcement Plate Unit, make sure that the Unit is in contact with the frame at the front and rear sides of the copier as shown on the left.

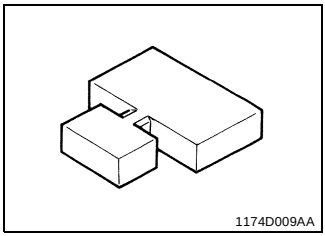
40 ADJUSTMENT

40-1. JIGS AND TOOLS USED

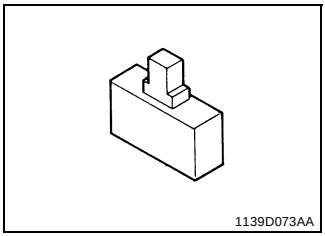
✻ Important

- When adjusting the positions of the Scanner and Mirrors Carriage, use Jigs numbered ② and ③.
- When adjusting the gap between the Doctor Blade and Sleeve Roller, use Jigs numbered ④ and ⑤.
- When adjusting the position of PC Drum Paper Separator Fingers, use Jigs numbered ④ and ⑥.

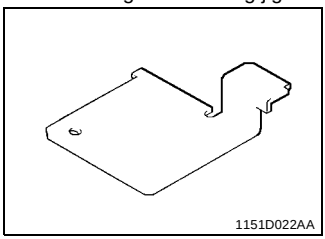
① Front Door Interlock Switch Actuating Jig



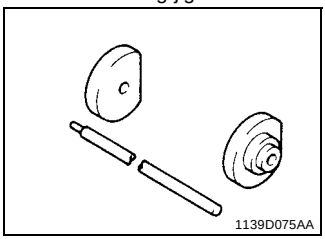
② Scanner Positioning jig



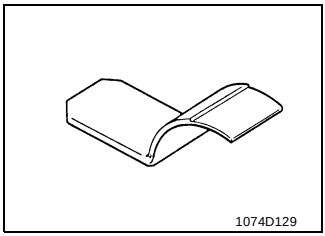
③ Scanner/Mirrors Carriage Positioning jig



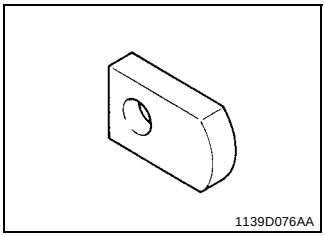
④ Sleeve/Magnet Roller Positioning jig



⑤ D.B. Adjusting jigs



⑥ PC Drum Paper Separator Fingers Positioning jig

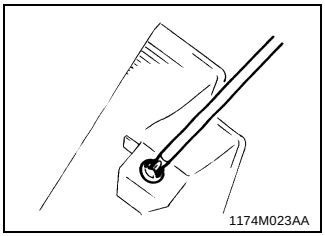


40-2. ADJUSTMENT REQUIREMENTS LIST

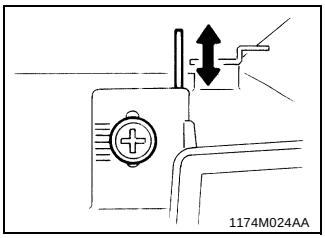
Adjustment Item	Requirements	Adjusting Point	Ref. Page
Optimum Exposure Setting in the Manual Exposure Mode	Kodak Gray Scale: no image of the 1st step, faint image of the 2nd step	Control panel	D-50
Optimum Exposure Setting in the Auto Exposure Mode		Control panel	D-49
Multi Bypass Table Reference Position	(× 1.000) 20 ± 2 mm	Multi Bypass Table	D-53
1st Drawer Reference Position	(× 1.000) 20 ± 2 mm	Drawer Front Panel	D-54
2nd Drawer Reference Position	(× 1.000) 20 ± 2 mm	Drawer Front Panel	D-54
Full Size Leading Edge Registration	(× 1.000) 20 ± 1.5 mm	Control panel	D-57
Enlargement Leading Edge Registration	(× 2.000) 40 ± 3 mm	Control panel	D-61
Reduction Leading Edge Registration	(× 0.500) 10 ± 1.5 mm	Control panel	D-59
Image Leading Edge Erase Width	1.0 to 6.5 mm	Control panel	D-62
Image Trailing Edge Erase Width	2.0 to 3.0 mm	Control panel	D-64
Image Erase Lamp Position	$0.5\ ^{+0.5}_{-0}$ mm	Adjusting Screw for Image Erase Lamp position	D-66
Adjustment of the Original Size Detecting Board		Control panel	D-70

40-3. ADJUSTMENT OF SWITCHES

(1) Adjustment of Front Door Interlock Switch



1. Open the Front Door.
2. Loosen two screws that secure the Front Door Interlock Switch Actuating Plate to the Front Door.



3. Move the Switch Actuating Plate back and forth to meet the requirements below.
   (Requirements)

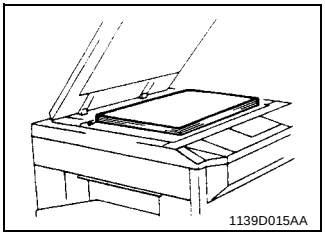
- When the Front Door is closed, the Magnetic Catches on both sides are securely touched.
- When the Front Door is closed, Interlock Switch indicator on the Control Panel goes out.

40-4. ELECTRICAL/IMAGE ADJUSTMENTS

(1) Adjustment of the Optimum Exposure Setting in the Auto Mode

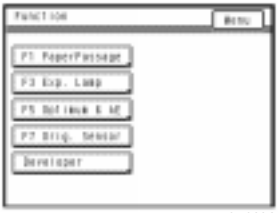
✻ Important

- This adjustment must be made before the optimum exposure setting in the Manual mode is adjusted.



1139D015AA

1. Place about five sheets of A3 or 11" × 17" paper on the Original Glass and lower the Original Cover.



1149D082CA

2. On the control panel, press the User Mode key, Meter Count key, Stop key, 10-keys “0”, 10-keys “0”, Stop key, 10-keys “0”, and 10-keys “1”, in that order, to set the copier into the Tech. Rep. mode.
3. Touch “Function” to open the Function menu.

1149D087CA

4. Touch “F5 Optimum & AE.”
5. Press the Start Key to let the copier make the adjustment.
6. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back into the normal mode.

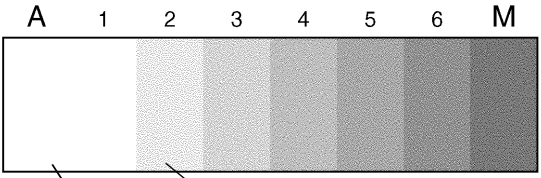
NOTE

Pressing the Start Key lets the copier make the adjustment of optimum exposure setting. During the adjustment, the Start Key is lit up orange. It turns to green as soon as the adjustment is completed. (It takes about 5 sec. to make the adjustment.)

(2) Adjustment of the Optimum Exposure Setting in the Manual Mode

✻ Requirement

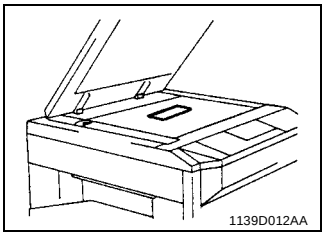
- When the manual exposure setting is at the central indication, no image of step no. 1 of a Kodak Gray Scale should be produced on the copy, but a faint image of step no. 2 should be produced.



1139D270AA

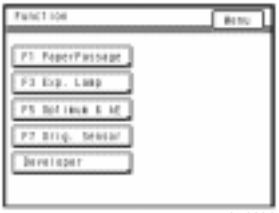
✻ Important

- This adjustment should be carried out only after completing “Adjustment of the Optimum Exposure Setting in the Auto Mode” and “Adjustment of the Aperture Blades.”



1139D012AA

1. Place the Kodak Gray Scale lengthwise, face down, and at the center on the Original Glass. Place a sheet of pure white A3 or 11" × 17" paper over it and then lower the Original Cover.
2. Set the copier into the Manual Exposure Mode. Set the Exposure Setting to the central or fifth indication and enter 15 copies to be made by using the Multi-Copy Keys. (Use A3 paper.)
3. Press the Start Key.
   Check that the 15th copy meets the requirement given above.



1149D082CA

4. On the control panel, press the User Mode key, Meter Count key, Stop key, 10-keys “0”, 10-keys “0”, Stop key, 10-keys “0”, and 10-keys “1”, in that order, to set the copier into the Tech. Rep. mode.
5. Touch “Function” to open the Function menu.

1149D087CA

6. Touch “F5 Optimum & AE”.
7. Using the Zoom Up/Down Keys, vary the value on the Magnification Ratio Indicator as necessary.
8. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back into the normal mode.

NOTE

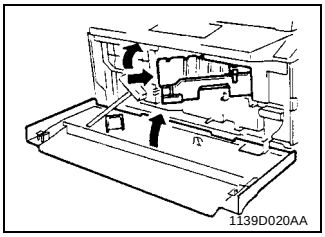
Increase the value to make the image lighter.
Decrease the value to make the image darker.

(3) Adjustment of the ATDC Sensor

✻ Important

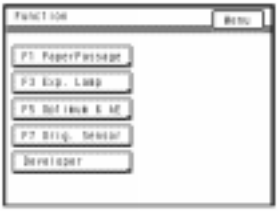
In the following cases, carry out ATDC Adjustment:

- When a new Imaging Unit is used.
- When new Starter is loaded into a Used Imaging Unit.



1139D020AA

1. Load the starter.



1149D082CA

2. On the control panel, press the User Mode key, Meter Count key, Stop key, 10-keys “0”, 10-keys “0”, Stop key, 10-keys “0”, and 10-keys “1”, in that order, to set the copier into the Tech. Rep. mode.
3. Touch “Function” to open the Function menu.

1149D088CA

4. Touch “Developer.” Then, touch “F8 ATDC Adjust.”
5. Press the Start Key to let the copier make the ATDC Sensor adjustment automatically. (It takes about 5 min. for the copier to complete the adjustment procedure.)
6. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back into the normal mode.

(4) Adjustment of the Aperture Blades

✻ Requirement

- There should be no dark or light bands running in the feeding direction on copies produced. (Adjust to obtain the mean image density for all areas.)

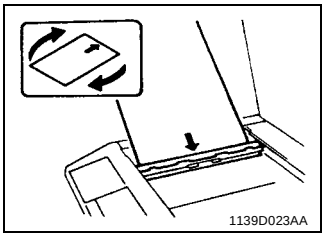
✻ Important

- If dark and light bands running in the feeding direction occur on copies, make this adjustment after checking the following.

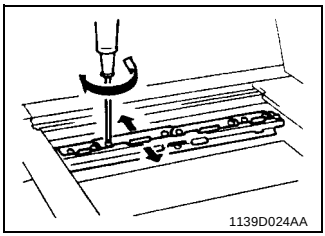
1. The Drum Charge Corona Wire, Grid Mesh, and Image Transfer Corona Wire are free of dirt.
2. The surfaces of the Mirrors and Lens are free of dirt.
3. The surfaces of the Exposure Lamp and Main Erase Lamp are free of scratches and dirt.
4. The Cleaning Blade is free of waviness.

1. Make a copy under the following control panel settings.

Original	: A3 or A4 crosswise, 11" × 17" or 11" × 8-1/2" crosswise
Paper	: A3 or A4 crosswise, 11" × 17" or 11" × 8-1/2" crosswise
Magnification ratio	: × 1.000
Exposure	: Manual (setting convenient for check)



2. Remove the Original Glass.
3. Turn the copy on the Copy Tray around as shown to reverse the leading and trailing edges and align it with the Aperture Blades.



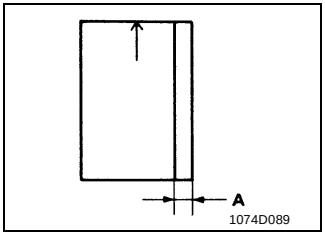
4. Adjust to obtain the mean image density for all areas of the copy.

NOTE

To make the image darker, move the Aperture Blade toward the Auxiliary Reflector.
To make the image lighter, move the Aperture Blade away from the Auxiliary Reflector.

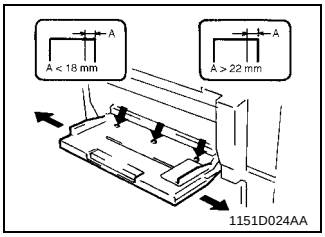
(5) Adjustment of the Multi Bypass Table Reference Position

✻ Requirement



- Ready a test chart (A3 or 11" × 17") as shown on the left.
  Draw a line on the chart at a point 20 mm from the right edge as shown.
- Dimension A on the copy should measure 20 ± 2.0 mm.

1. Place the test chart face down on the Original Glass and align its rear left corner with the ▷ marker on the Original Width Scale on the left side of the platen.
   Then, lower the Original Cover.
2. Using the Multi Bypass Table, make two full size copies.
3. Using the second copy, compare the position of the reference line on the copy with that on the test chart.



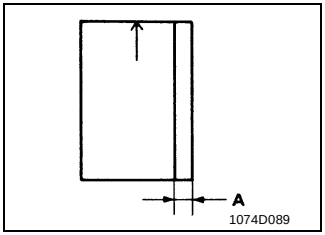
4. If the line does not meet the requirement, loosen the three screws that secure the Multi Bypass Table and move the Table as necessary in the direction of the arrows.

NOTE

If dimension A on the copy is smaller than 18 mm, move the Table to the front. If it is more than 22 mm, move the Table to the rear.
When an Automatic or Duplexing Document Feeder is mounted, it involves changing the Original Glass. This in turn results in the position of the Original Length Scale being slightly shifted toward the rear. This is corrected by installing the Original Positioning Plate.

(6) Adjustment of the 1st/2nd Drawer Reference Position

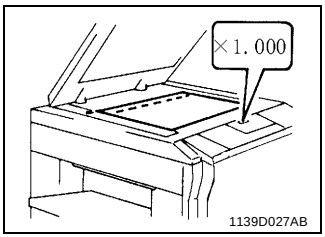
✻ Requirement



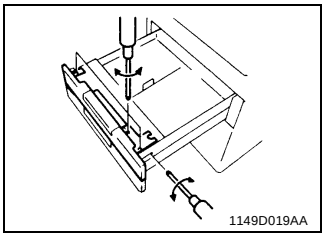
- Ready a test chart (A3 or 11" × 17") as shown on the left. Draw a line on the chart at a point 20 mm from the right edge as shown.
- Dimension A on the copy should measure 20 ± 2.0 mm.

✻ Important

- If the Paper Tray of the Drawer needs to be moved for adjustment, make sure that it is moved straight, not slantwise (as skewed feeding of paper could result).



1. Place the test chart face down on the Original Glass and align its rear left corner with the ▷ marker on the Original Width Scale on the left side of the platen.
   Then, lower the Original Cover.
2. Using the 1st Drawer, make two full size copies. (Use A3 or 11" × 17" paper.)
3. Using the second copy, compare the position of the reference line on the copy with that on the test chart.

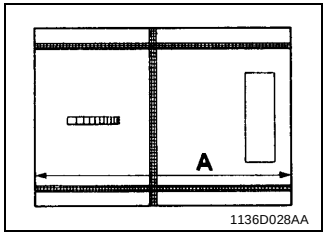


4. If the line does not meet the requirement, slide out the 1st Drawer, loosen the three screws shown on the left, and move the Paper Tray as necessary to the front or rear.
5. Using the same steps (1 through 4), adjust the reference position of the 2nd Drawer.

NOTE

If dimension A on the copy is smaller than 18 mm, move the Paper Tray to the rear. If it is more than 22 mm, move the Paper Tray to the front.

(7) Adjustment of the Zoom Ratio in the Feeding Direction ("A3 Feed Direction Mag. Ratio" of Adjust Mode)



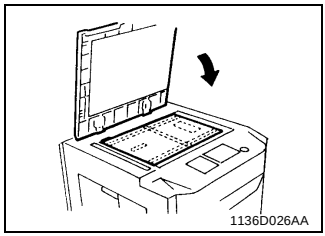
1136D028AA

- Prepare a GTC-003 Chart and, using part A shown in the illustration on the left, adjust to meet the following specifications on the copy.

Zoom Ratio	Width A (mm)
Full Size (× 1.000)	300 ± 1.50
Enlargement (× 2.000)	300 ± 2.25
Reduction (× 0.500)	150 ± 2.25

- Adjust mode setting range: 42 to 58

✻ Important
- This adjustment must be made before the "Adjustment of the Leading Edge Registration."


1136D026AA

1. Place the chart in alignment with the reference mark (△) on the Original Width Scale and lower the Original Cover.
2. Make a copy at full size (× 1.000) in a single copy run and check the image.

1149D086CA

3. If the specifications are not met, press the User Mode key, Meter Count key, Stop key, 10-keys "0", 10-keys "0", Stop key, 10-keys "0", and 10-keys "1", in that order, on the control panel to set the copier into the Tech. Rep. mode.
4. Press the Stop key and then the Start key to set the copier into the Factory Setting mode.

1173D018CA

5. Touch "Adjust" to open the "Adjust 1/2" menu.
6. Touch "▼" to highlight "A3 Feed Direction Mag. Ratio."

1173D018CA

7. Using the "◀" or "▶" key, change the value so that width A falls within the specified range.

NOTE

If width A on the copy is smaller than 185.5, touch the "▶" key.

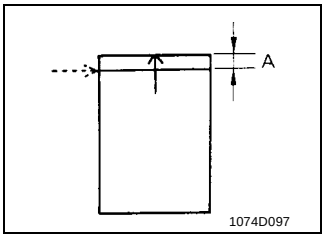
If width A on the copy is greater than 301.5, touch the "◀" key.

8. Press the Start key.
   (Check the image again. If the image does not meet the Specifications, readjust.)

(8) Adjustment of the Leading Edge Registration

Full Size

✻ Requirement



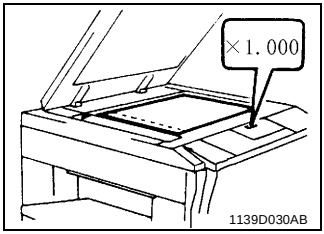
- Ready a test chart (A3 or 11" × 17") as shown on the left. Draw a line across the test chart at a point 20 mm from the leading edge and use it as the reference line.
  Dimension A at the center on the copy should meet the following requirements.

Mag. Ratio	Dimension A (mm)
Full Size (× 1.000)	20.0 ± 1.5
Enlargement (× 2.000)	40.0 ± 3
Reduction (× 0.500)	10.0 ± 1.5

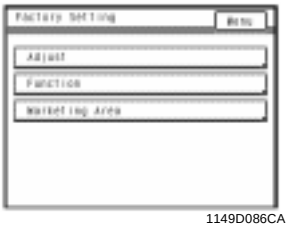
- Setting value range: 30 to 70
- Movement equivalent to 1 step of setting value: 0.28 mm

✻ Important

- After having set the copier into the Adjust Mode, make two single copies and use the second copy for the check. (The first copy represents the data before adjustment.)
- When full size leading edge registration has been adjusted, it affects leading edge registration in the enlargement and reduction mode. Be sure, therefore, to check for registration in these modes, too.



1. Place the test chart face down on the Original Glass and align its rear left corner with the ▷ marker on the Original Width Scale on the left side of the platen. Then, lower the Original Cover.
2. Make single copies in full size mode (× 1.000) and check for leading edge registration on the second copy.
   (If it meets the requirement, go to "Adjustment of Reduction Leading Edge Registration.")



3. If the registration does not meet the requirement, go to the control panel and press the User Mode key, Meter Count key, Stop key, 10-keys "0", 10-keys "0", Stop key, 10-keys "0", and 10-keys "1", in that order, to set the copier into the Tech. Rep. Mode.
4. Press the Stop key and then the Start key to set the copier into the Factory Setting mode.

1173D019CA

5. Touch “Adjust” to open the “Adjust 1/2” menu.
6. Touch “▼” to highlight “A4 Scan Regist Full Size.”

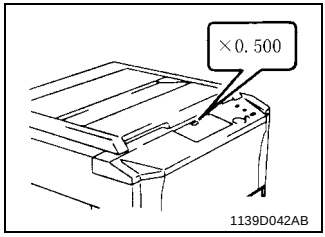
1173D019CA

7. Using the “◀” or “▶” key, change the value so that width A falls within the specified range.

NOTE
If width A on the copy is smaller than 18.5, touch the “▶” key.
If width A on the copy is greater than 21.5, touch the “◀” key.

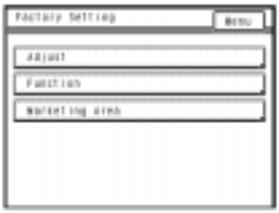
8. Press the Start key.
   (Check the image again. If the image does not meet the Specifications, readjust.)

Reduction



1139D042AB

1. After the leading edge registration in the full size mode has been adjusted, make two single copies in a reduction mode (×0.500) and check for leading edge registration on the second copy.



1149D086CA

2. If the registration does not meet the requirement, go to the control panel and press the User Mode key, Meter Count key, Stop key, 10-keys “0”, 10-keys “0”, Stop key, 10-keys “0”, and 10-keys “1”, in that order, to set the copier into the Tech. Rep. Mode.
3. Press the Stop key and then the Start key to set the copier into the Factory Setting mode.

1173D020CA

4. Touch “Adjust” to open the “Adjust 1/2” menu.
5. Touch “▼” to highlight “A5 Scan Regist Reduction”.

1173D020CA

6. Using the “◀” or “▶” key, change the value so that width A falls within the specified range.

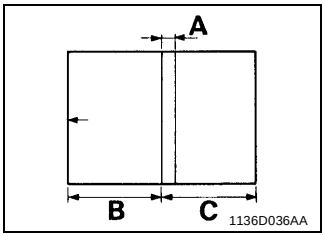
NOTE
If width A on the copy is smaller than 8.5, touch the “▶” key.
If width A on the copy is greater than 11.5, touch the “◀” key.

7. Press the Start key.
   (Check the image again. If the image does not meet the Specifications, readjust.)

Book Second Page

✻ Important

- This adjustment must be made after the “Adjustment of the Leading Edge Registration in the Reduction Mode” has been made.



1136D036AA

1. Prepare a chart as shown on the left.
- Reference line: 20 mm (B = C)
- Specifications: 20 ± 3.0 mm
- Adjust value setting range: 30 to 70
2. On the Touch Panel, touch “Orig. > Copy”. Select “Separation”, and then “Book > 1” or “R-Book > 1”; then, make a copy at full size, using A4 crosswise paper.

1149D086CA

3. If the specifications are not met, press the User Mode key, Meter Count key, Stop key, 10-keys “0”, 10-keys “0”, Stop key, 10-keys “0”, and 10-keys “1”, in that order, on the control panel to set the copier into the Tech. Rep. mode.
4. Press the Stop key and then the Start key to set the copier into the Factory Setting mode.

1173D021CA

5. Touch “Adjust” to open the “Adjust 1/2” menu, then touch “Next” to access the “Adjust 2/2” menu.
6. Touch “▼” to highlight “A6 Book B-Scan Regist.”

1173D021CA

7. Using the “◀” or “▶” key, change the value so that width A falls within the specified range.

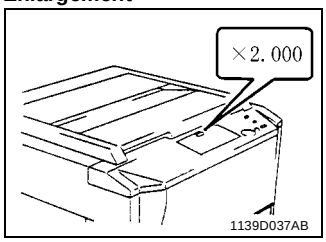
NOTE

If width A on the copy is smaller than 17.0, touch the “▶” key.

If width A on the copy is greater than 23.0, touch the “◀” key.

8. Press the Start key.
   (Check the image again. If the image does not meet the Specifications, readjust.)

Enlargement



1139D037AB

1. After the leading edge registration for the Book Second Page has been adjusted, make two single copies in an enlargement mode (× 2.000) and check for leading edge registration on the second copy.

1149D086CA

2. Press the User Mode key, Meter Count key, Stop key, 10-keys “0”, 10-keys “0”, Stop key, 10-keys “0”, and 10-keys “1”, in that order, on the control panel to set the copier into the Tech. Rep. mode.
3. Press the Stop key and then the Start key to set the copier into the Factory Setting mode.

1173D022CA

4. Touch “Adjust” to open the “Adjust 1/2” menu, then touch “Next” to access the “Adjust 2/2” menu.
5. Touch “▼” to highlight “A11 Scan Regist Enlargement.”

1173D022CA

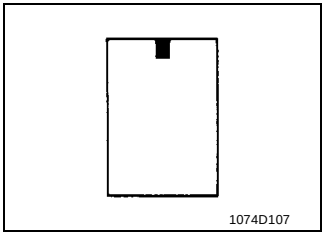
6. Using the “◀” or “▶” key, change the value so that width A falls within the specified range.

NOTE
If width A on the copy is smaller than 37.0, touch the “▶” key.
If width A on the copy is greater than 43.0, touch the “◀” key.

7. Press the Start key.
(Check the image again. If the image does not meet the Specifications, readjust.)

(9) Adjustment of the Image Leading Edge Erase Width

✻ Requirement

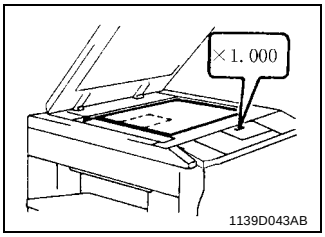


- Ready a test chart (A3 or 11" × 17") as shown on the left. Paint a 20 mm-long rectangle in black at the center of the test chart along its leading edge as shown. Adjust so that the erase width along the leading edge of the painted area measures 1.0 to 6.5 mm.

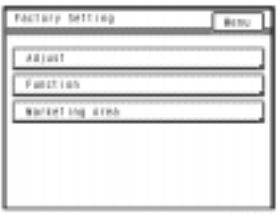
- Setting value range: 42 to 58
- Movement equivalent to 1 step of setting value: 0.75 mm
- Having a greater setting value results in a greater erase width.
- Having a smaller setting value results in a smaller erase width.

✻ Important

- This adjustment must be made after the leading edge registration adjustment has been completed.



1. Place the test chart face down on the Original Glass and align its rear left corner with the ▷ marker on the Original Width Scale on the left side of the platen.
   Then, lower the Original Cover.
2. Make two single copies in full size mode (× 1.000) and check for leading edge erase width on the second copy.



3. Press the User Mode key, Meter Count key, Stop key, 10-keys “0”, 10-keys “0”, Stop key, 10-keys “0”, and 10-keys “1”, in that order, on the control panel to set the copier into the Tech. Rep. mode.
4. Press the Stop key and then the Start key to set the copier into the Factory Setting mode.

5. Touch “Adjust” to open the “Adjust 1/2” menu, then touch “Next” to access the “Adjust 2/2” menu.
6. Touch “▼” to highlight “A12 Leading Edge Erase Adjust.”

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7. Using the "◀" or "▶" key, change the value so that the erase width falls within the specified range.

NOTE

If the width on the copy is less than 1.0 mm, touch the "▶" key.

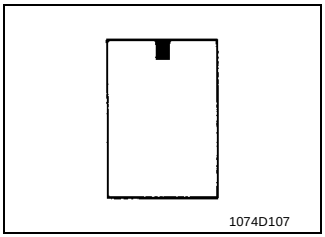
If the width on the copy is more than 6.5 mm, touch the "◀" key.

8. Press the Start key.
   (Check the image again. If the image does not meet the Specifications, readjust.)

(10) Adjustment of the Image Trailing Edge Erase Width

✻ Requirement

- Ready a test chart (A3 or 11”x17”) as shown on the left.

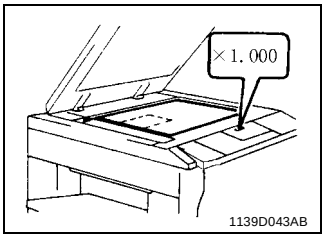


- Paint a 20mm-long rectangle in black at the center of the test chart along its trailing edge as shown. Adjust so that the erase width along the trailing edge of the painted area measures 0.5 to 5.5 mm.

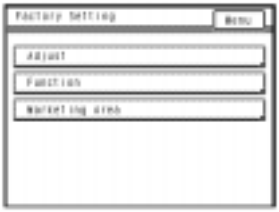
- Adjust value setting range: 42 to 58
- Movement equivalent to 1 step of setting value: 1.00 mm

✻ Important

- This adjustment must be made after the “Adjustment of the Image Leading Edge Erase Width” has been made.



1. Place the chart in alignment with the reference mark (△) on the Original Width Scale and lower the Original Cover.
2. Make a copy at full size (×1.000) in a single copy run and check the image.



3. If the specifications are not met, press the User Mode key, Meter Count key, Stop key, 10-keys “0”, 10-keys “0”, Stop key, 10-keys “0”, and 10-keys “1”, in that order, on the control panel to set the copier into the Tech. Rep. mode.
4. Press the Stop key and then the Start key to set the copier into the Factory Setting mode.

5. Touch “Adjust” to Open the “Adjust 1/2” menu, then touch “Next” to access the “Adjust 2/2” menu.
6. Touch “▼” to highlight “A13 Trailing Edge Erase Adjust.”

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7. Using the "▶" or "◀" key, change the value so that the erase width falls within the specified range.

NOTE

If the erase width on the copy is less than 0.5 mm, touch the "▶" key.
If the erase width on the copy is more than 5.5 mm, touch the "◀" key.

8. Press the Start key.
   (Check the image again. If the image does not meet the Specifications, readjust.)

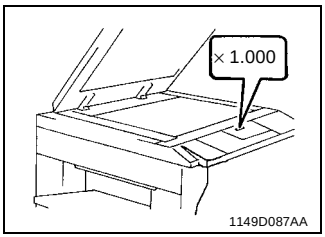
(11) Adjustment of the Image Erase Lamp Position

✻ Requirement

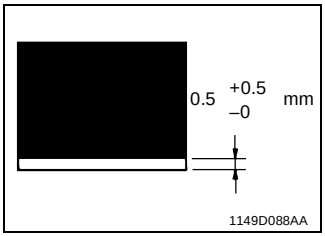
- Image erase width: Within 0.5 $^{+0.5}_{-0}$ mm

✻ Important

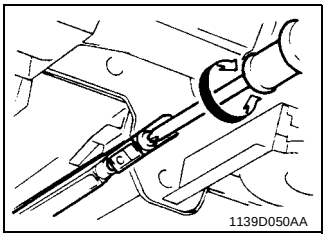
- This adjustment must be made after the reference positions of the Multi Bypass Table and 1st and 2nd Drawers have been adjusted.



1. With the Original Cover raised, place a sheet of A4 or 8-1/2" × 11 paper lengthwise on the Original Glass.



2. With the Original Cover raised, make a full size copy.
3. Check the erase width on the front edge and turn the edge erase width adjusting screw as necessary to obtain an erase width of 0.5 $^{+0.5}_{-0}$ mm.



NOTE

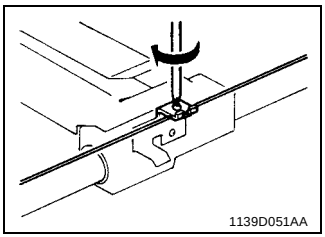
Loosening the screw will make the erase width smaller.
Tightening the screw will make the erase width greater.

40-5. OTHER ADJUSTMENTS

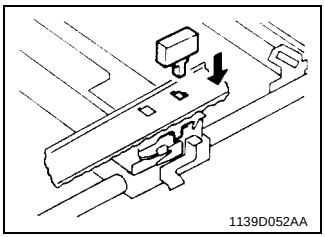
(1) Adjustment of the Scanner/Mirrors Carriage Position

✻ Requirement

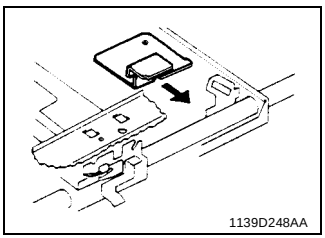
- With the Scanner positioned correctly with reference to the upper copier frame, there should be no gap between the Scanner/Mirrors Carriage and the Scanner/Mirrors Carriage Positioning Jig.



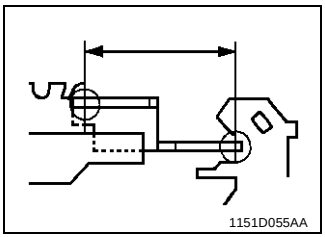
1. Remove the Original Cover, Original Scales, and Original Glass.
2. Temporarily tighten the screw on the Scanner Drive Cable Holding Bracket.



3. Align the rectangular hole in the upper copier frame with the U-groove in the Scanner, then insert the Scanner Positioning Jig into the hole.



4. Install the Scanner/Mirrors Carriage Positioning Jig between the Scanner and Mirrors Carriage.



5. Loosen the screw that has been temporarily tightened in step 2. Turn the helical gear of the Scan Pulley to press the Mirrors Carriage up against the Scanner/Mirrors Carriage Positioning Jig and the Scanner.
6. Tighten the screw on the Scanner Drive Cable Holding Bracket.

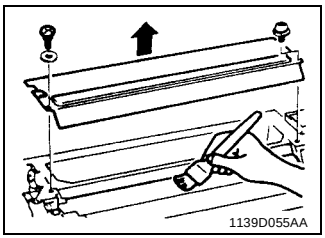
(2) Adjustment of the Gap Between the Doctor Blade and Sleeve Roller

✻ Requirement

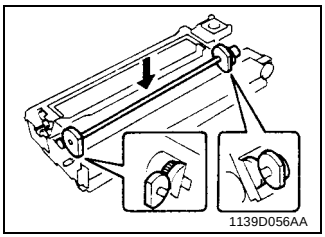
- The gap between the Doctor Blade and the Sleeve Roller should be 0.35 mm ± 0.05 mm.

✻ Important

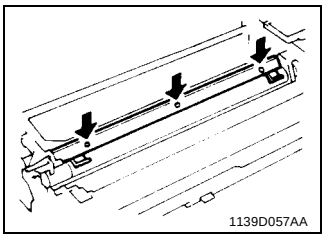
- Cover the PC Drum with the Drum Cloth to prevent it from being scratched.



1. Remove the Developer Scattering Prevention Plate.
2. Wipe the developer off the surface of the Sleeve Roller.



3. Install the Sleeve/Magnet Roller Positioning Jig onto the Imaging Unit.



4. Loosen the three screws securing the Doctor Blade in position. Insert the D.B. Adjusting Jigs into the space between the Doctor Blade and Sleeve Roller.
5. Press down the Doctor Blade until it positively contacts the D.B. Adjusting Jigs, then tighten the three screws to secure it in position.

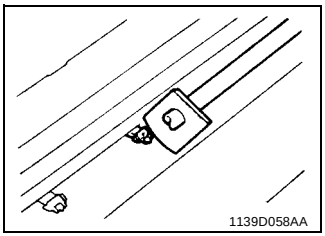
(3) Adjustment of the PC Drum Paper Separator Fingers Position

✻ Requirement

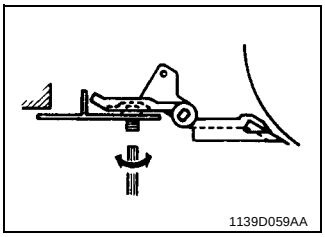
- The gap between the PC Drum and the PC Drum Paper Separator Fingers should be 1.0 ± 0.5 mm when the Separator Solenoid is in the deenergized position.

✻ Important

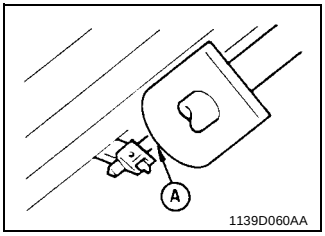
- Cover the PC Drum with the Drum Cloth to prevent it from being scratched.
- Use care not to deform the Separator Fingers during the adjustment procedure.
- Press part A shown below up against the PC Drum Paper Separator Fingers Positioning Jig for the adjustment (to prevent the Paper Separator Fingers from being deformed).



1. Install the Sleeve/Magnet Roller Positioning Jig, to which the PC Drum Paper Separator Fingers Positioning Jig has been fitted, onto the Imaging Unit.



2. Turn the set screw on each of the two Finger Holders as necessary for the adjustment.

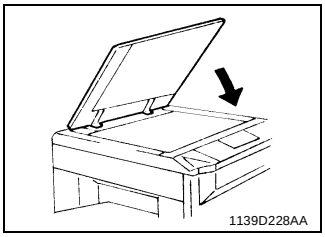


3. Ensure that part A contacts the PC Drum Paper Separator Fingers Positioning Jig when the Separator Solenoid is in the deenergized position.

(4) Adjustment of the Original Size Detecting Board

✻ Important

- This adjustment must be made after the Original Size Detecting Board has been replaced.



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1. Lower the Original Cover with no paper on the Original Glass.

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2. On the control panel, press the User Mode key, Meter Count key, Stop key, 10-keys “0”, 10-keys “0”, Stop key, 10-keys “0”, and 10-keys “1”, in that order, to set the copier into the Tech. Rep. Mode.
3. Touch “Function”.
4. Touch “F7 Orig. Sensor”.

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5. Press the Start Key to let the copier make the adjustment.

NOTE

During the adjustment, the Start Key is lit up orange. It turns to green as soon as the adjustment is completed.
(It takes about 2 sec. to make the adjustment.)

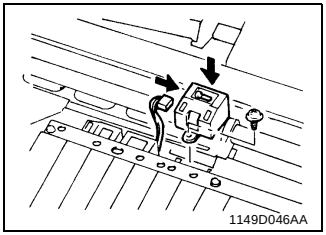
6. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back into the normal mode.

41 MISCELLANEOUS

41-1. INSTALLATION OF ORIGINAL SIZE DETECTING SENSORS FD3/CD2 (OPTION; STANDARD FOR 200V AREAS)

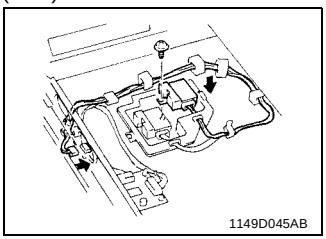
1. Remove the Original Scales and Original Glass.
2. Install the Original Size Detecting Sensors (option).

(FD3)



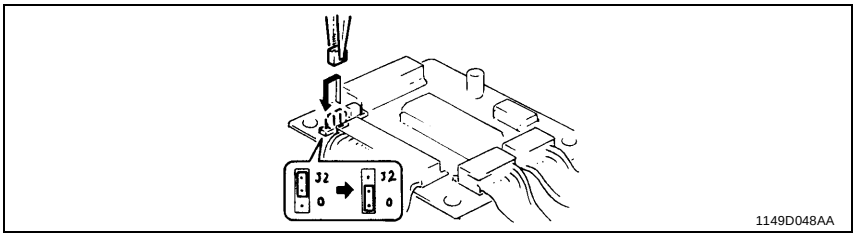
- Remove the harness cover (one screw).
- Secure FD3 in position (one screw).
- Connect the connector to FD3.
- Reinstall the harness cover (one screw).

(CD2)



- Remove the cover from Original Size Detecting Board (one screw).
- Secure CD2 in position (one screw).
- Pass the harness through the wiring saddle and connect CN4 to Original Size Detecting Board.

3. Using pliers, reconnect jumper connector (J2) on Original Size Detecting Board as illustrated below.



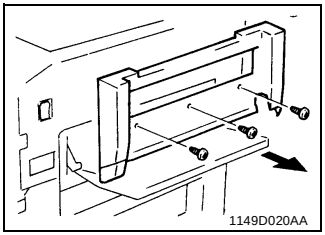
4. After these steps have been completed, turn ON Power Switch and run the F7 operation.

- For details, see “(4) Adjustment of the Original Size Detecting Board” on.

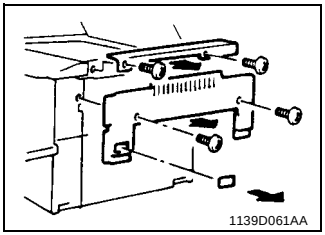
NOTE

- *Be sure to run the F7 operation after FD3 and CD2 have been installed or the copier is unable to detect the paper size.*

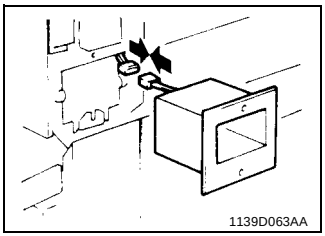
41-2. INSTALLATION OF THE PLUG-IN COUNTER MOUNTING BRACKET (OPTION)



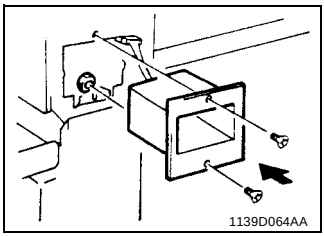
1. Remove the Middle Right Cover.



2. Remove the Counter Cover.
3. Remove the Upper Right Cover.
4. Remove the Right Cover.



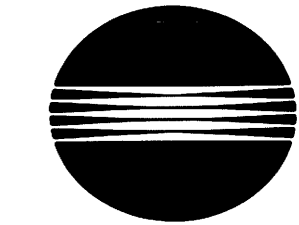
5. Connect the Plug-In Counter Connector.



6. Secure the Plug-In Counter Mounting Bracket by tightening the two screws.

EP3010

TROUBLESHOOTING



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CONTENTS

1. INTRODUCTION T-1
   1-1. General Precautions T-1
   1-2. How to Use This Book T-1
   1-3. Reading the Text T-1
2. I/O PORT CHECK T-2
   2-1. Controlled Parts Check Procedure T-2
   2-2. I/O Port Check List T-5
3. PAPER TRANSPORT FAILURE T-15
   3-1. Paper Misfeed T-15
   3-2. Misfeed Detection Types and Detection Timings T-17
   3-3. Misfeed Troubleshooting Procedures T-19
      (1) Copier Paper Take-Up Misfeed T-19
      (2) Transport/Separator Misfeed T-21
      (3) Multi Bypass Misfeed T-23
      (4) Fusing/Exit Misfeed T-25
      (5) PF-206 Paper Take-Up Misfeed T-27
      (6) PF-112 Paper Take-Up Misfeed T-29
      (7) AD-11 Vertical Transport/Storage Misfeed T-31
      (8) AD-11 Paper Take-Up Misfeed T-34
4. MALFUNCTIONS T-36
   4-1. Detection Timings Classified by Malfunction Codes T-36
   4-2. Troubleshooting Procedures by Malfunction Codes T-48
      (1) C0000: Main Drive Motor M9's Failure to Turn
      C0001: Main Drive Motor M9 Turning at Abnormal Timing T-48
      (2) C0010: PC Drive Motor M1's Failure to Turn
      C0011: PC Drive Motor M1 Turning at Abnormal Timing T-50
      (3) C004A: Optical Section Cooling Fan Motor M2's Failure to Turn
      C004b: Optical Section Cooling Fan Motor M2 Turning at Abnormal Timing
      C004C: Cooling Fan Motor M7's Failure to Turn T-52
      (4) C0070: Toner Replenishing Motor M8's Failure to Turn
      C0071: Toner Replenishing Motor M8 Turning at Abnormal Timing T-54
      (5) C0200: PC Drum / Image Transfer / Separator Charge Corona Malfunction T-55
      (6) C03##: Master Board/Harness Malfunctions T-56
      (7) C0400: Exposure Lamp LA1's Failure to Turn ON
      C0410: Exposure Lamp LA1 Turning ON at Abnormal Timing T-57
      (8) C0500: Warming-up Failure
      C0510: Abnormally Low Fusing Temperature
      C0520: Abnormally High Fusing Temperature T-59
      (9) C0600: Scanner Motor M4 Malfunction
      C06FX: Signal Failure
      C0610: Lens Motor M5 Malfunction
      C0620: Mirror Motor M6 Malfunction T-61

(10) C0910: 2nd Drawer Upward Motion Failure
C0914: 2nd Drawer Paper Lift-Up Motor M14's Failure to Turn
C0920: 1st Drawer Upward Motion Failure
C0924: 1st Drawer Paper Lift-Up Motor M13's Failure to Turn T-63
(11) C0900: 3rd Drawer Upward Motion Failure
C0904: 3rd Drawer Paper Lift-Up Motor M24's Failure to Turn
C0950: 4th Drawer Upward Motion Failure
C0954: 4th Drawer Paper Lift-Up Motor M25's Failure to Turn T-65
(12) C0990: Main Tray Upward Motion Failure
C0991: Main Tray Downward Motion Failure
C0992: Main Tray Downward Motion Failure
C0993: Main Tray Upward Motion Failure
C0994: Main Tray Elevator Motor M26's Failure to Turn T-67
(13) C0998: Shifter Transfer Failure
C0999: Shifter Return Failure
C099A: Shifter Return Failure
C099b: Shifter Transfer Failure
C099C: Paper Shift Motor M27's Failure to Turn T-69
(14) C099E: Shift Gate Position Detecting Failure
C099F: Shift Gate Position Detecting Failure
C0996: 3rd Drawer Lock Release Failure
C0F79: Paper Empty Sensor Failure T-71
(15) C0d00: Duplex Unit Front/Rear Edge Guide Plates Home Position Detection Failure
C0d20: Duplex Unit Gate Unit Home Position Detection Failure
C0d50: Duplex Unit Drive Motor M31's Failure to Turn
C0d51: Duplex Unit Drive Motor M31 Turning at Abnormal Timing T-73
(16) C0F02: Original Size Detecting Board UN2 Failure
C0FE1 to C0FFF: Original Size Detecting Sensor Failure T-75
(17) C0F10: AE Sensor Board PWB-H Failure T-77
(18) C0F20: AIDC Sensor Board PWB-G Variation Correction Failure
C0F22: AIDC Sensor Board PWB-G Grid Voltage Correction Failure
C0F23: AIDC Sensor Board PWB-G Exposure Correction Failure T-78
(19) C0F30: ATDC Sensor UN3 Failure
C0F31: ATDC Sensor UN3 Failure T-79
4-3. Power Malfunctions T-80
(1) Main Relay Does Not Turn ON T-80
(2) Main Relay Turns ON But the Control Panel Gives No Display T-82
4-4. Miscellaneous T-83
5. IMAGE FAILURE T-84
5-1. Image Failure Troubleshooting T-84
5-2. Initial Checks T-84
5-3. Troubleshooting Procedures Classified by Image Failures T-86

42 INTRODUCTION

42-1. General Precautions

1. When servicing the copier with its covers removed, use utmost care to prevent your hands, clothing, and tools from being caught in revolving parts including the chains and gears. When servicing the copier with the Lower Rear Cover removed, be sure to install the jig.
2. Before attempting to replace parts and unplug connectors, make sure that the power cord of the copier has been unplugged from the wall outlet.
3. Never create a closed circuit across connector pins except those specified in the text and on the printed circuit.
4. When creating a closed circuit and measuring a voltage across connector pins specified in the text, be sure to use the green wire (GND).
5. When the user is using a word processor or personal computer from a wall outlet of the same line, take necessary steps to prevent the circuit breaker from opening due to overloads.
6. Keep all disassembled parts in good order and keep tools under control so that none will be lost or damaged.

42-2. How to Use This Book

1. If a component on a PWB or any other functional unit including a motor is defective, the text only instructs you to replace the whole PWB or functional unit and does not give troubleshooting procedures applicable within the defective unit.
2. All troubleshooting procedures contained herein assume that there are no breaks in the harnesses and cords and all connectors are plugged into the right positions.
3. For the removal procedures of covers and parts, see DIS/REASSEMBLY, ADJUSTMENT.
4. The troubleshooting procedures are given in the order of greater frequency of trouble or order of operation.
5. The procedures preclude possible malfunctions due to noise and other external causes.

42-3. Reading the Text

1. The paper transport failure troubleshooting procedures are given according to the symptom. First identify the location where the paper is present and start the procedure for that particular location. For malfunction troubleshooting, start with step 1 and onward.
2. Make checks in numerical order of steps and, if an item is checked okay, go to the next step.

Pattern 1

Step	Check Item	Result	Action
1	Is--?	YES	Do this.
2	Go to step 2 if it checks okay.		

Pattern 2

Step	Check Item	Result	Action
1	Is--?	YES	Do this.
		NO	Check that.
2	Go to step 2 if it checks okay.		

43 I/O PORT CHECK

43-1. Controlled Parts Check Procedure

To allow the Tech. Rep. to easily and safely determine whether a particular controlled part is fully operational, this copier provides the following provision: checking the data of the I/O port of the board IC with the copier in the standby state (including a misfeed, malfunction, and closure failure condition) allows the Tech. Rep. to determine whether a signal is properly input to, and output from, a controlled part.

<Procedure>

1. On the circuit diagram accompanying the text, locate the I/O port of the controlled part which is probably defective when a misfeed or malfunction occurs.
2. Select the “IC Port Data Check” function of “I/O Check” in the Tech. Rep. mode and access the screen which contains the port identified in step 1 above. (See SWITCHES ON PWBs/TECH. REP. MODE.)
3. Change or check the input or output port data to determine whether the controlled part is operational and signals are properly input and output.
4. If the controlled part does not operate properly after changing the output port data, select “Controller Board Check” of “I/O Check” in the Tech. Rep. mode and determine whether the board is responsible for that malfunction or not.

Note

Only the output ports given on pages T-37 and 38 may be checked by “Controller Board Check” of “I/O Check” in the Tech. Rep. mode.

<Controlled Part Check Procedure by Changing Input Port Data>

Example

When a paper misfeed occurs in the paper take-up section of the copier, 1st Drawer Paper Take-Up Sensor PC55 is considered to be responsible for it.

Procedure

1. Remove the sheet of paper misfed.
2. From the I/O port check list, it is found that the H/L input signal to PC55 is supplied from PWB-A (IC3A) APB3.
3. Select “IC Port Check” from the I/O Check function in the Tech. Rep. mode and access the screen which includes the input ports of PWB-A (IC3A) APB3.
4. Check that the input port data of PWB-A (IC3A) APB3 on the screen is “H” (sensor being unblocked).
5. Move the PC55 actuator to block the sensor.
6. Return to the “I/O Check” basic screen, select “IC Port Check” again, choose the screen which includes the APB3 input port data, and make sure that the data has changed from “H” to “L”.

L: PC55 is operational. H: PC55 is faulty.

<Controlled Part Check Procedure by Changing Output Port Data>

Example

When a manual paper misfeed occurs, Manual Feed Paper Take-Up Clutch CL51 is considered to be responsible for it.

Procedure

1. Remove the sheet of paper misfed and reset the misfeed.
2. From the I/O port check list, it is found that the ON/OFF output signal of CL51 is supplied from PWB-A (IC5A) BPA1.
3. Select “IC Port Check” from the I/O Check function in the Tech. Rep. mode and access the screen which includes the output ports of PWB-A (IC5A) BPA1.
4. Check that the output port data of PWB-A (IC5A) BPA1 on the screen is “1” (CL51 is deenergized).
5. Touch the “CHANGE” key on the screen to change the data from “1” to “0”, causing CL51 to be energized for approx. 5 seconds. This allows you to determine whether the Clutch is “operational or faulty” by checking for the Clutch sound.

   Operational: Sound produced. Faulty: No sound produced.

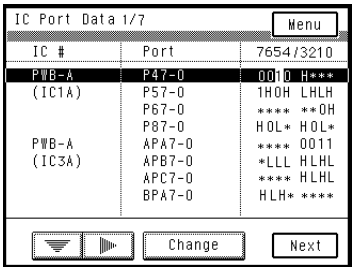
6. If CL51 was not energized, make the “Controller Board Check” in the same mode (for some electrical parts only).
7. If the “ON” signal of CL51 is not output from PWB-A, the corresponding malfunction code is displayed.

✻ For CL51, “C033B” is displayed.

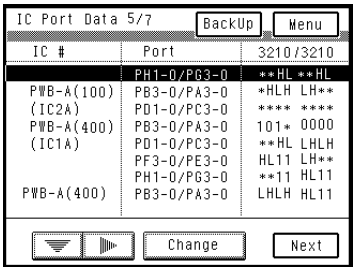
43-2. I/O Port Check List

<Port Check Screens>

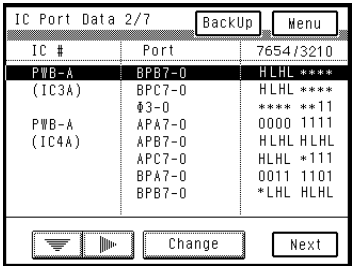
- The following screens are displayed in the standby mode but may not always be as shown below because some port data are undefined.



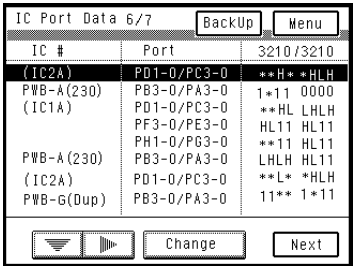
1173T019CA



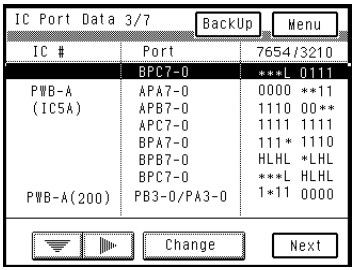
1173T023CA



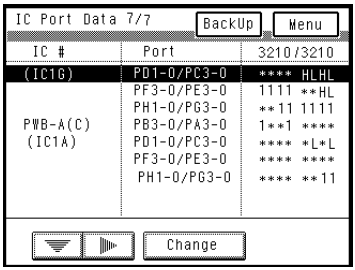
1173T020CA



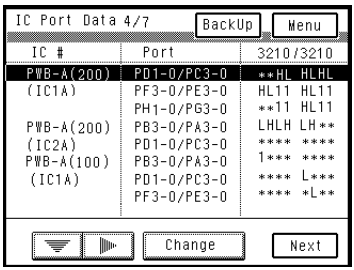
1173T024CA



1173T021CA



1173T025CA



1173T022CA

<I/O Port Check List>
Copier
✻ The shaded areas of the following table indicate that the output check cannot be made by touching the Change key.

Symbol	Part/Signal Name	Display Page	IC No.	Port No.	I/O	Operation Characteristics/Panel Display		CN/PJ No.
						H or 1	L or 0	
M1	PC Drive Motor/REM	2/7	IC4A	BPA2	❍	OFF	ON	PJ9A-5
↑	PC Drive Motor/lock signal	2/7	IC4A	BPB1	|	When locked	When turned	PJ9A-4
M2	Optical Section Cooling Fan Motor/REM	3/7	IC4A	BPC0	❍	OFF	ON	PJ11A-4A
↑	Optical Section Cooling Fan Motor/lock signal	2/7	IC4A	BPB5	|	When locked	When turned	PJ11A-6A
M3	Suction Fan Motor	3/7	IC4A	BPC2	❍	OFF	ON	PJ11A-6B
M4	Scanner Motor/ SCAN signal	2/7	IC4A	APC0	❍	Stop	Scan cycle	—
M7	Cooling Fan Motor/ REM	3/7	IC4A	BPC1	❍	OFF	ON	PJ11A-1A
↑	Cooling Fan Motor/ lock signal	2/7	IC4A	BPB6	|	When locked	When turned	PJ11A-3A
M8	Toner Replenishing Motor/REM	3/7	IC4A	BPC3	❍	OFF	ON	PJ11A-8A
M9	Main Drive Motor/ REM	2/7	IC4A	APC2	❍	OFF	ON	PJ9A-2
↑	Main Drive Motor/ lock signal	2/7	IC4A	APB6	|	When locked	When turned	PJ9A-1
M11	1st Drawer Paper Take-Up Motor	3/7	IC5A	APA0	❍	Turn inhibited	Turn permitted	PJ16A-1
M12	2nd Drawer Paper Take-Up Motor	3/7	IC5A	APA1	❍	Turn inhibited	Turn permitted	PJ16A-2
M13	1st Drawer Lift-Up Motor (UP)	3/7	IC5A	APA4	❍	OFF	ON (up)	PJ16A-5
M14	2nd Drawer Lift-Up Motor (UP)	3/7	IC5A	APA6	❍	OFF	ON (up)	PJ6A-7

Symbol	Part/Signal Name	Display Page	IC No.	Port No.	I/O	Operation Characteristics/Panel Display		CN/PJ No.
						H or 1	L or 0	
SL1	Separator Solenoid	2/7	IC4A	BPA0	❍	OFF	ON	PJ7A-4
SL5	Exit/Duplex Switching Solenoid	2/7	IC4A	BPA5	❍	OFF	ON	PJ9A-10
SL51	Manual Feed Paper Take-Up Solenoid (UP)	3/7	IC5A	BPA2	❍	OFF	ON (up)	PJ14A-3
↑	Manual Feed Paper Take-Up Solenoid (DOWN)	3/7	IC5A	BPA3	❍	OFF	ON (down)	PJ14A-2
CL1	Synchronizing Roller Clutch	2/7	IC4A	BPA4	❍	OFF	ON	PJ11A-4B
CL2	Paper Transport Clutch	2/7	IC4A	BPA3	❍	OFF	ON	PJ11A-2B
CL51	Manual Feed Paper Take-Up Clutch	3/7	IC5A	BPA1	❍	OFF	ON	PJ14A-4
PC12	Duplex Unit Vertical Transport Sensor	3/7	IC5A	BPB0	|	Paper not present	Paper present	PJ22A-11
PC30	Paper Exit Sensor	2/7	IC4A	BPB2	|	Paper not present	Paper present	PJ9A-8
PC31	Manual Feed Paper Empty Sensor	3/7	IC5A	BPB1	|	When unblocked	When blocked	PJ14A-6
PC51	Transport Roller Sensor	3/77	IC5A	BPB6	|	Paper not present	Paper present	PJ15A-5
PC54	Paper Leading Edge Detecting Sensor	3/7	IC5A	BPB5	|	Paper not present	Paper present	PJ15A-2
PC55	1st Drawer Paper Take-Up Sensor	1/7	IC3A	APB3	|	Paper not present	Paper present	PJ17A-5A
PC56	2nd Drawer Paper Take-Up Sensor	1/7	IC3A	APB4	|	Paper not present	Paper present	PJ17A-5B
PC57	Side Door Detecting Sensor	3/7	IC5A	BPB2	|	When Opened	When Closed	PJ18A-6
PC61	1st Drawer Set Sensor	1/7	IC3A	BPA5	|	Out of position	In position	PJ18A-2
PC62	2nd Drawer Set Sensor	1/7	IC3A	APB5	|	Out of position	In position	PJ17A-8A

Symbol	Part/Signal Name	Display Page	IC No.	Port No.	I/O	Operation Characteristics/Panel Display		CN/PJ No.
						H or 1	L or 0	
PC64	Vertical Transport Sensor	1/7	IC3A	APB6	|	Paper not present	Paper present	PJ17A-8B
PC65	1st Drawer Lift-Up Sensor	1/7	IC3A	APB1	|	Not at upper limit	At upper limit	PJ17A-2A
PC66	2nd Drawer Lift-Up Sensor	1/7	IC3A	APB2	|	Not at upper limit	At upper limit	PJ17A-2B
PC67	1st Drawer Lift-Up Motor Pulse Sensor	1/7	IC3A	APC0	|	When unblocked	When blocked	PJ19A-2
PC68	2nd Drawer Lift-Up Motor Pulse Sensor	1/7	IC3A	APC1	|	When unblocked	When blocked	PJ19A-5
PC72	Paper Size Detecting Sensor 5	2/7	IC3A	BPB6	|	Size not detected	Size detected	PJ32A-2
PC73	Paper Size Detecting Sensor 6	2/7	IC3A	BPB7	|	Size not detected	Size detected	PJ32A-5
PC81	Scanner Reference Position Sensor	2/7	IC4A	APC4	|	Not at home	At home	PJ28A-4
PC101	1st Drawer Paper Empty Sensor	1/7	IC3A	APC2	|	paper not present	paper present	PJ19A-9
PC102	2nd Drawer Paper Empty Sensor	1/7	IC3A	APC3	|	paper not present	paper present	PJ19A-12
PC111	Original Cover Detecting Sensor	3/7	IC5A	BPB4	|	When raised	When lowered	PJ15A-12
PC112	Toner Hopper Home Position Sensor	3/7	IC5A	BPB7	|	Not at home	At home	PJ15A-9
CNT1	Total Counter/REM	1/7	IC1A	P55	❍	Normally	When counting	PJ9A-3
↑	Total Counter/Set	2/7	IC4A	APB7	|	Out of position	In position	—
CNT2	Key Counter/REM	1/7	IC1A	P44	❍	Normally	When counting	PJ25A-9
↑	Key Counter/Set	3/7	IC5A	BPC3	|	Out of position	In position	PJ25A-7
H1	Fusing Heater Lamp	1/7	IC1A	P57	❍	OFF	ON	PJ34A-2
H3	Paper Dehumidifying Heater	1/7	IC1A	P45	❍	ON	OFF	PJ12A-5

Symbol	Part/Signal Name	Dis-play Page	IC No.	Port No.	I/O	Operation Charac-teristics/Panel Display		CN/PJ No.
						H or 1	L or 0	
RY1	Main Relay	1/7	IC1A	P46	❍	ON	OFF	PJ12A-3
LA1	Exposure Lamp/AVR REM	1/7	IC1A	P61	❍	OFF	ON	PJ36A-4
LA2	Main Erase Lamp	2/7/7	IC4A	BPA1	❍	OFF	ON	PJ8A-8
LA3	Image Erase Lamp 24V0	3/7	IC5A	APB2	❍	OFF	DC24V	PJ13A-1
↑	Image Erase Lamp 24V1	3/7	IC5A	APB3	❍	OFF	DC24V	PJ13A-2
↑	Image Erase Lamp 24V2	3/7	IC5A	APB4	❍	OFF	DC24V	PJ13A-3
↑	Image Erase Lamp 0	3/7	IC5A	APB5	❍	OFF	ON	PJ13A-4
↑	Image Erase Lamp 1	3/7	IC5A	APB6	❍	OFF	ON	PJ13A-5
↑	Image Erase Lamp 2	3/7	IC5A	APB7	❍	OFF	ON	PJ13A-6
↑	Image Erase Lamp 3	3/7	IC5A	APC0	❍	OFF	ON	PJ13A-7
↑	Image Erase Lamp 4	3/7	IC5A	APC1	❍	OFF	ON	PJ13A-8
↑	Image Erase Lamp 5	3/7	IC5A	APC2	❍	OFF	ON	PJ13A-9
↑	Image Erase Lamp 6	3/7	IC5A	APC3	❍	OFF	ON	PJ13A-10
↑	Image Erase Lamp 7	3/7	IC5A	APC4	❍	OFF	ON	PJ13A-11
↑	Image Erase Lamp 8	3/7	IC5A	APC5	❍	OFF	ON	PJ13A-12
↑	Image Erase Lamp 9	3/7	IC5A	APC6	❍	OFF	ON	PJ13A-13
↑	Image Erase Lamp 10	3/7	IC5A	APC7	❍	OFF	ON	PJ13A-14
S1	Power Switch	1/7	IC1A	P53	|	OFF	ON	PJ12A-1
S21	Front Door Interlock Switch	1/7	IC1A	P51	|	OFF	ON	PJ12A-4
S61	Paper Size Detecting Switch 1	1/7	IC3A	BPA6	|	Not detected	Detected	PJ21A-2
S62	Paper Size Detecting Switch 2	1/7	IC3A	BPA7	|	Not detected	Detected	PJ21A-4
S63	Paper Size Detecting Switch 3	2/7	IC3A	BPB4	|	Not detected	Detected	PJ21A-7
S64	Paper Size Detecting Switch 4	2/7	IC3A	BPB5	|	Not detected	Detected	PJ21A-9
PWB-H	AE Sensor Board/ AE-PWM	1/7	IC1A	P60	❍	Pulse output		PJ5A-2
PWB-G	AIDC Sensor Board/ AIDC REM	2/7	IC4A	APA4	❍	OFF	ON	PJ8A-5
↑	AIDC Sensor Board/ AIDC LED	1/7	IC1A	P56	❍	Pulse output		—

Symbol	Part/Signal Name	Display Page	IC No.	Port No.	I/O	Operation Characteristics/Panel Display		CN/PJ No.
						H or 1	L or 0	
M21	Vertical Transport Motor	3/7	IC1A	PB3	❍	Turn inhibited	Turn permitted	—
M22	3rd Drawer Paper Take-Up Motor	3/7	IC1A	PB1	❍	Turn inhibited	Turn permitted	—
M23	4th Drawer Paper Take-Up Motor	3/7	IC1A	PB0	❍	Turn inhibited	Turn permitted	—
M24	3rd Drawer Paper Lift-Up Motor	3/7	IC1A	PA0	❍	OFF	ON (up)	PJ10A-4
↑	3rd Drawer Paper Lift-Up Motor	3/7	IC1A	PA1	❍	OFF	ON (up)	PJ10A-3
M25	4th Drawer Paper Lift-Up Motor	3/7	IC1A	PA2	❍	OFF	ON (up)	PJ10A-2
↑	4th Drawer Paper Lift-Up Motor	3/7	IC1A	PA3	❍	OFF	ON (up)	PJ10A-1
PC11	Lower Left Door Sensor	4/7	IC2A	PB1	|	Out of position	In position	PJ5A-2
PC13	Duplex Unit Turnover Path Sensor	4/7	IC2A	PB0	|	Paper not present	Paper present	PJ5A-5
PC17	Vertical Transport Sensor 3	4/7	IC1A	PC3	|	Paper not present	Paper present	PJ8A-9A
PC18	Lower Right Door Sensor	4/7	IC1A	PE2	|	Out of position	In position	PJ8A-5A
PC19	3rd Drawer Paper Lift-Up Sensor	4/7	IC1A	PG3	|	Out of position	In position	PJ8A-12B
PC20	3rd Drawer Paper Empty Sensor	4/7	IC1A	PC0	|	Paper not present	Paper present	PJ8A-2B
PC21	3rd Drawer Paper Take-Up Sensor	4/7	IC1A	PE3	|	Paper not present	Paper present	PJ8A-2A
PC22	Vertical Transport Sensor 4	4/7	IC1A	PC2	|	Paper not present	Paper present	PJ8A-12A
PC23	4th Drawer Paper Lift-Up Sensor	4/7	IC1A	PF3	|	Not at upper limit	At upper limit	PJ9A-2

Symbol	Part/Signal Name	Display Page	IC No.	Port No.	I/O	Operation Characteristics/Panel Display		CN/PJ No.
						H or 1	L or 0	
PC24	4th Drawer Paper Empty Sensor	4/7	IC1A	PD0	I	Paper not present	Paper present	PJ9A-12
PC25	3rd Drawer Set Sensor	4/7	IC1A	PG2	I	Out of position	In position	PJ8A-9B
PC26	4th Drawer Set Sensor	4/7	IC1A	PF2	I	Out of position	In position	PJ9A-5
PC27	3rd Drawer Paper Lift-Up Motor Pulse Sensor	4/7	IC1A	PC1	I	When unblocked	When blocked	PJ8A-5B
PC28	4th Drawer Paper Lift-Up Motor Pulse Sensor	4/7	IC1A	PD1	I	When unblocked	When blocked	PJ9A-9
PC29	4th Drawer Paper Take-Up Sensor	4/7	IC2A	PB3	I	Paper not present	Paper present	PJ4A-2

Symbol	Part/Signal Name	Dis-play Page	IC No.	Port No.	I/O	Operation Characteristics/Panel Display		CN/PJ No.
						H or 1	L or 0	
M21	Vertical Transport Motor	5/7	IC1A	PB3	❍	Turn inhibited	Turn permitted	—
M22	3rd Drawer Paper Take-Up Motor	5/7	IC1A	PB1	❍	Turn inhibited	Turn permitted	—
M26	Main Tray Elevator Motor	5/7	IC1A	PA2	❍	Up/stop	Down	PJ10A-2
↑	Main Tray Elevator Motor	5/7	IC1A	PA3	❍	Down/ stop	Up	PJ10A-1
M27	Paper Shift Motor	5/7	IC1A	PA0	❍	Transfer/ stop	Return	PJ10A-3
↑	Paper Shift Motor	5/7	IC1A	PA1	❍	Return/ stop	Transfer	PJ10A-4
M28	Shift Gate Motor	5/7	IC1A	PB2	❍	OFF	ON	PJ10A-6
PC1	Shift Tray Paper Empty Sensor	5/7	IC1A	PD1	|	Paper not present	Paper present	PJ9A-9
PC2	Main Tray Lower Position Sensor	6/7	IC2A	PC1	|	Not at lower limit	At lower limit	PJ3A-3
PC3	Shifter Home Position Sensor	6/7	IC2A	PC0	|	Not at home	At home	PJ3A-4
PC4	Shifter Return Position Sensor	6/7	IC2A	PD1	|	Not at returned position	At returned position	PJ3A-5
PC5	Elevator Motor Pulse Sensor	5/7	IC1A	PF2	|	When unblocked	When blocked	PJ9A-5
PC6	Shift Motor Pulse Sensor	5/7	IC1A	PD0	|	When unblocked	When blocked	PJ9A-12
PC7	3rd Drawer Set Sensor	5/7	IC1A	PG2	|	Out of position	In position	PJ8A-9B
PC11	Lower Left Door Sensor	5/7	IC2A	PB1	|	Out of position	In position	PJ5A-2
PC13	Duplex Unit Turnover Path Sensor	5/7	IC2A	PB0	|	Paper not present	Paper present	PJ5A-5
PC17	Vertical Transport Sensor 3	5/7	IC1A	PC3	|	Paper not present	Paper present	PJ8A-9A

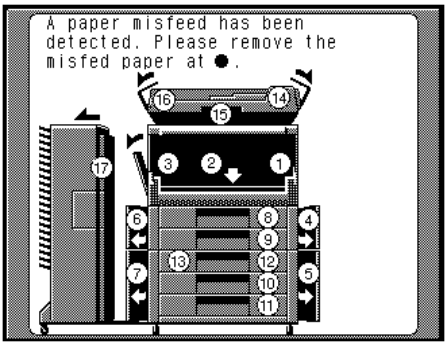
Symbol	Part/Signal Name	Display Page	IC No.	Port No.	I/O	Operation Characteristics/Panel Display		CN/PJ No.
						H or 1	L or 0	
PC18	Lower Right Door Sensor	5/7	IC1A	PE2	I	Out of position	In position	PJ8A-5A
PC19	3rd Drawer Paper Lift-Up Sensor	5/7	IC1A	PG3	I	Not at upper limit	At upper limit	PJ8A-12B
PC20	3rd Drawer Paper Empty Sensor	5/7	IC1A	PC0	I	Paper not present	Paper present	PJ8A-2B
PC21	3rd Drawer Paper Take-Up Sensor	5/7	IC1A	PE3	I	Paper not present	Paper present	PJ8A-2A
PC22	Vertical Transport Sensor 4	5/7	IC1A	PC2	I	Paper not present	Paper present	PJ8A-12A
PC34	Shift Gate Position Sensor	5/7	IC1A	PC1	I	When unblocked	When blocked	PJ3A-7
PC35	Lower Position Sensor	5/7	IC2A	PB3	I	Not at lower limit	At lower limit	PJ3A-6
PWB-E	Main Tray Paper Empty Board	5/7	IC1A	PF3	I	Paper not present	Paper present	PJ9A-2
UN21	Drawer Paper Descent Key	6/7	IC2A	PC2	I	OFF	ON	PJ3A-2
SL41	3rd Drawer Lock Solenoid	5/7	IC2A	PA1	I	OFF	ON	PJ6A-2

Symbol	Part/Signal Name	Dis-play Page	IC No.	Port No.	I/O	Operation Characteristics/Panel Display		CN/PJ No.
						H or 1	L or 0	
M21	Vertical Transport Motor	4/7	IC1A	PB3	❍	Turn inhibited	Turn permitted	—
M31	Duplex Unit Drive Motor	6/7	IC1G	PB3	❍	OFF	ON	PJ6G-2
↑	Duplex Unit Drive Motor/lock signal	7/7	IC1G	PE1	|	When locked	When turned	PJ6G-1
CL31	Duplex Unit Paper Take-Up Clutch	6/7	IC1G	PA3	❍	OFF	ON	PJ2G-7
SL31	Duplex Unit Gate Switching Solenoid	7/7	IC1G	PH1	❍	OFF	ON	PJ3G-5
SL32	Duplex Unit Rear Finger Solenoid	7/7	IC1G	PH0	❍	OFF	ON	PJ3G-7
SL33	Duplex Unit Pick-Up Solenoid	6/7	IC1G	PB2	❍	OFF	ON	PJ2G-12
PC8	Duplex Gate Home Position Sensor	7/7	IC1G	PE0	|	Not at home	At home	PJ7G-2
PC9	Front/Rear Edge Guide Plate Home Position Sensor	7/7	IC1G	PC3	|	Not at home	At home	PJ7G-5
PC11	Lower Left Door Sensor	5/7	IC2A	PB1	|	Out of position	In position	PJ4A-2
PC13	Duplex Unit Turnover Path Sensor	5/7	IC2A	PB0	|	Paper not present	Paper present	PJ4A-5
PC14	Duplex Unit Paper Entry Sensor	7/7	IC1G	PC1	|	Paper not present	Paper present	PJ3G-2
PC15	Duplex Unit Paper Empty Sensor	7/7	IC1G	PC2	|	Paper not present	Paper present	PJ2G-4
PC16	Duplex Unit Paper Take-Up Sensor	7/7	IC1G	PC0	|	Paper not present	Paper present	PJ2G-9
PC17	Vertical Transport Sensor 3	4/7	IC1A	PC3	|	Paper not present	Paper present	PJ6A-6
PC18	Lower Right Door Sensor	4/7	IC1A	PE2	|	Out of position	In position	PJ6A-2

3 PAPER TRANSPORT FAILURE

3-1. Paper Misfeed

When a paper misfeed occurs, the Touch Panel shows the corresponding message, misfeed location and paper location.



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Blinking Light	There is a misfeed at this location.
Steady Light	There might be a sheet of paper stopped at this location.

Blinking/Steady LED	Misfeed/Paper Location	Ref. Page	
①	Multi Bypass take-up and transport	T-24	
②	Transport/separator	T-22	
③	Fusing/exit	T-26	
④	Copier take-up/vertical transport	T-20	
④⑤	Paper Feed Cabinet take-up/vertical transport	T-27 to 30	✻
⑥⑦	Duplex Unit vertical transport	T-32	✻
⑧	1st Drawer take-up	T-22	
⑨	2nd Drawer take-up	T-22	
⑩	3rd Drawer take-up	T-27 to 30	✻
⑪	4th Drawer take-up	T-27, 28	✻
⑫	Duplex Unit take-up	T-35	✻
⑦⑬	Duplex Unit storage	T-33	✻
⑭	ADF take-up	–	✻
⑮	ADF transport	–	✻
⑯	ADF turnover/exit	–	✻
⑰	Sorter	–	✻

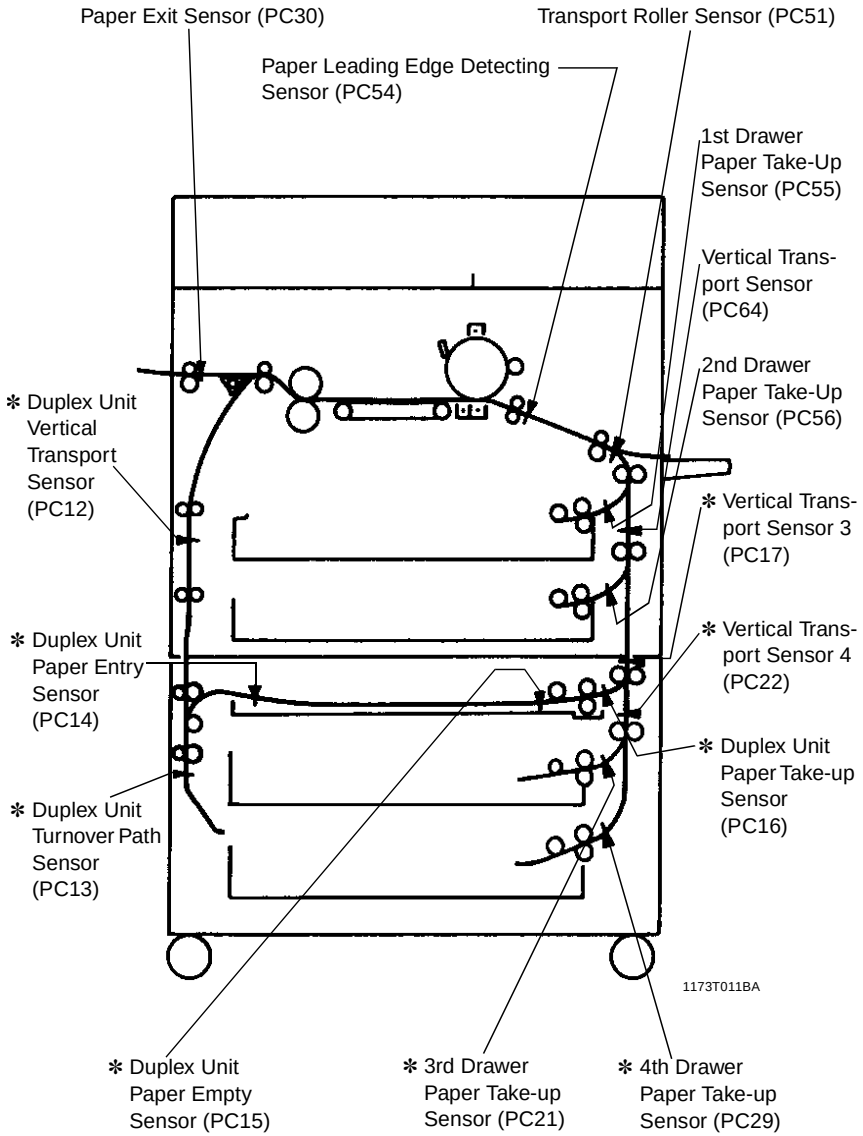
✻ When option is installed

<Display Resetting Method>

When misfeed occurs in the copier	Open and close the Front Door.
When misfeed occurs in the option (except Duplex Unit)	Raise and lower the option, or slide the option away from, and back up against, the copier.

<Misfeed Detecting Sensor Layout>

✻ When options are installed


Paper Exit Sensor (PC30)
Transport Roller Sensor (PC51)
Paper Leading Edge Detecting Sensor (PC54)
1st Drawer Paper Take-Up Sensor (PC55)
Vertical Transport Sensor (PC64)
2nd Drawer Paper Take-Up Sensor (PC56)
✻ Duplex Unit Vertical Transport Sensor (PC12)
✻ Vertical Transport Sensor 3 (PC17)
✻ Duplex Unit Paper Entry Sensor (PC14)
✻ Vertical Transport Sensor 4 (PC22)
✻ Duplex Unit Paper Take-up Sensor (PC16)
✻ Duplex Unit Turnover Path Sensor (PC13)
1173T011BA
✻ Duplex Unit Paper Empty Sensor (PC15)
✻ 3rd Drawer Paper Take-up Sensor (PC21)
✻ 4th Drawer Paper Take-up Sensor (PC29)

3-2. Misfeed Detection Types and Detection Timings

- The following table lists the types of misfeed detection classified by the misfeed locations and their corresponding detection timings.

Note

For the misfeed detection types and detection timings in the options, see the Service Manual for the options.

<Paper Take-up Misfeed>

Type	Detection Timing
Paper take-up failure detection	1st Drawer Paper Take-Up Sensor PC55 is not blocked (L) even after the lapse of approx. 2.4 seconds after 1st Drawer Paper Take-Up Motor M11 has been energized during the third paper take-up retry sequence.
	2nd Drawer Paper Take-Up Sensor PC56 is not blocked (L) even after the lapse of approx. 2.4 seconds after 2nd Drawer Paper Take-Up Motor M12 has been energized during the third paper take-up retry sequence.
Paper take-up trailing edge detection	PC55 is not unblocked (H) even after the lapse of T seconds (which varies for paper sizes) after it has been blocked (L).
	PC56 is not unblocked (H) even after the lapse of T seconds (which varies for paper sizes) after it has been blocked (L).
Leading edge detection by Vertical Transport Sensor PC64	PC64 is not blocked (L) even after the lapse of approx. 2.2 seconds after 2nd Drawer Paper Take-Up Sensor PC56 has been blocked (L).
Trailing edge detection by PC64	PC64 is not unblocked (H) even after the lapse of approx. 1.3 seconds after PC56 has been unblocked (H).
Leading edge detection by Transport Roller Sensor PC51	PC51 is not blocked (L) even after the lapse of approx. 1.6 seconds after PC55 has been blocked (L).
	PC51 is not blocked (L) even after the lapse of approx. 2.0 seconds after Vertical Transport Sensor PC64 has been blocked (L).

<Multi-Bypass Misfeed>

Type	Detection Timing
Paper take-up failure detection	PC51 is not blocked (L) even after the lapse of approx. 2.6 seconds after Manual Feed Paper Take-Up Clutch CL51 has been energized during the third paper take-up retry sequence.

<Transport/Separator Misfeed>

Type	Detection Timing
Trailing edge detection by Transport Roller Sensor PC51	PC51 is not unblocked (H) even after the lapse of T seconds (which varies for paper sizes) after the TRON signal has been input.
Leading edge detection by Paper Leading Edge Detecting Sensor PC54	PC54 is not blocked (L) even after the lapse of approx. 1.4 seconds after PC51 has been blocked (L).
Trailing edge detection by PC54	PC54 is not unblocked (H) even after the lapse of approx. 1.4 seconds after PC51 has been unblocked (H).

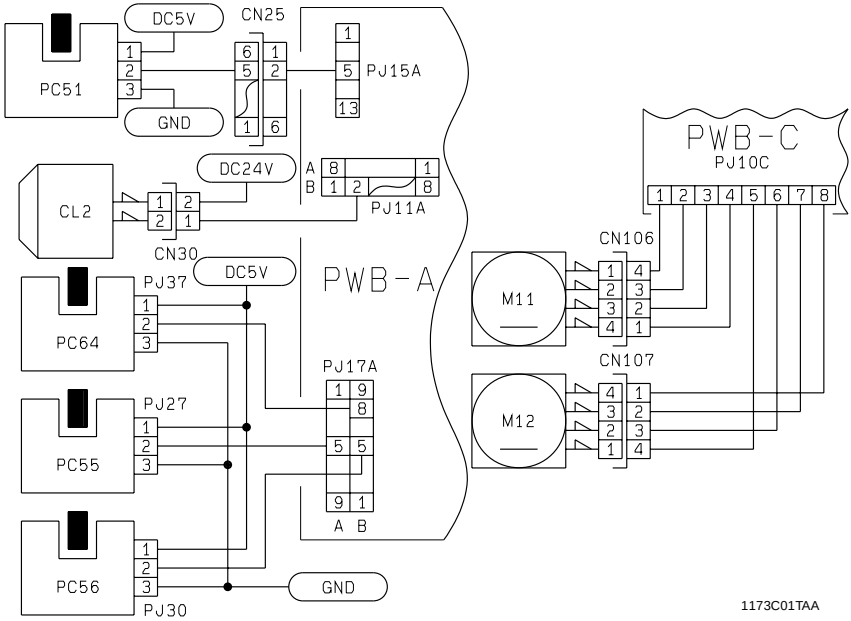
<Fusing/Exit Misfeed>

Type	Detection Timing
Leading edge detection by Paper Exit Sensor PC30	PC30 is not blocked (L) even after the lapse of approx. 3.6 seconds after the TRON signal has been input.
Trailing edge detection by PC30	PC30 is not unblocked (H) even after the lapse of approx. 3.7 seconds after PC54 has been unblocked (H).

3-3. Misfeed Troubleshooting Procedures

(1) Copier Paper Take-Up Misfeed

Relevant Electrical Parts	
• 1st Drawer Paper Take-Up Sensor PC55 • 2nd Drawer Paper Take-Up Sensor PC56 • Vertical Transport Sensor PC64 • Transport Roller Sensor PC51	• 1st Drawer Paper Take-Up Motor M11 • 2nd Drawer Paper Take-Up Motor M12 • Paper Transport Clutch CL2 • Power Supply Board PWB-C • Master Board PWB-A

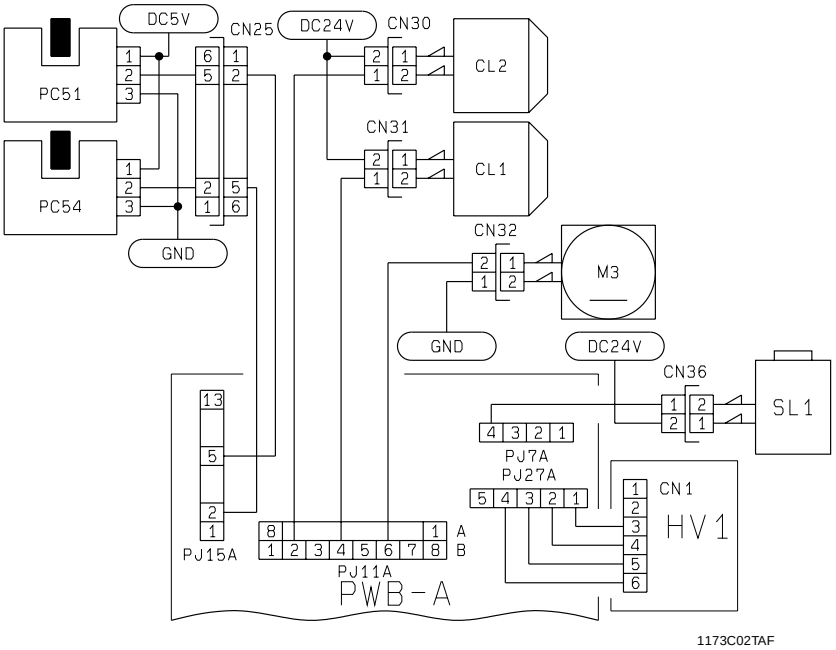


Copier Paper Take-Up Misfeed Troubleshooting Procedure

Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all. • Paper is stationary before the Paper Take-Up Sensor.	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, waved or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	3	Is the Trailing Edge Stop or Edge Guide in good position?	NO	Position the Edge Stop and Guide to meet the paper size.
	4	Are the Paper Take-Up Roll and Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up Roll and/or Separator Roll.
	5	Is the Paper Take-Up Motor (M11, M12) turning when the Start key is pressed?	NO	Check the Motor for overload.
	6	Run the “Controller/Board Check”. Is either of the malfunction codes C0329, C032A displayed?	YES	Replace PWB-A.
			NO	Replace M11, M12 or PWB-C.
Paper is stationary at the Vertical Transport Section.	1	Are the Vertical Transport Rollers deformed, worn or dirty with paper dust?	YES	Clean or replace the Vertical Transport Rollers.
	2	Does PC64 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (IC3A) APB6.	NO	Check the PC64 actuator for operation and, if it is okay, change PC64.
	3	Does PC55 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (IC3A) APB3.	NO	Check the PC55 actuator for operation and, if it is okay, change PC55.
	4	Does PC56 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (IC3A) APB4.	NO	Check the PC56 actuator for operation and, if it is okay, change PC56.
	5	Does PC51 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (IC5A) BPB6.	YES	Replace PWB-A.
			NO	Check the PC51 actuator and, if it is okay, change PC51.
Paper is stationary at the Transport Roller.	1	Does CL2 operate properly? Using the IC Port Data Check function, set the data of PWB-A (IC4A) BPA3 to “0”.	YES	Check the drive transmission path.
	2	Run the “Controller Board Check”. Is the malfunction code “C0320” displayed?	YES	Replace PWB-A.
			NO	Replace CL2.

(2) Transport/Separator Misfeed

Relevant Electrical Parts	
• Transport Roller Sensor PC51	• Separator Solenoid (SL1)
• Paper Leading Edge Detecting Sensor PC54	• Suction Fan Motor M3
• Paper Transport Clutch CL2	• High Voltage Unit HV1
• Synchronizing Roller Clutch CL1	• Master Board PWB-A

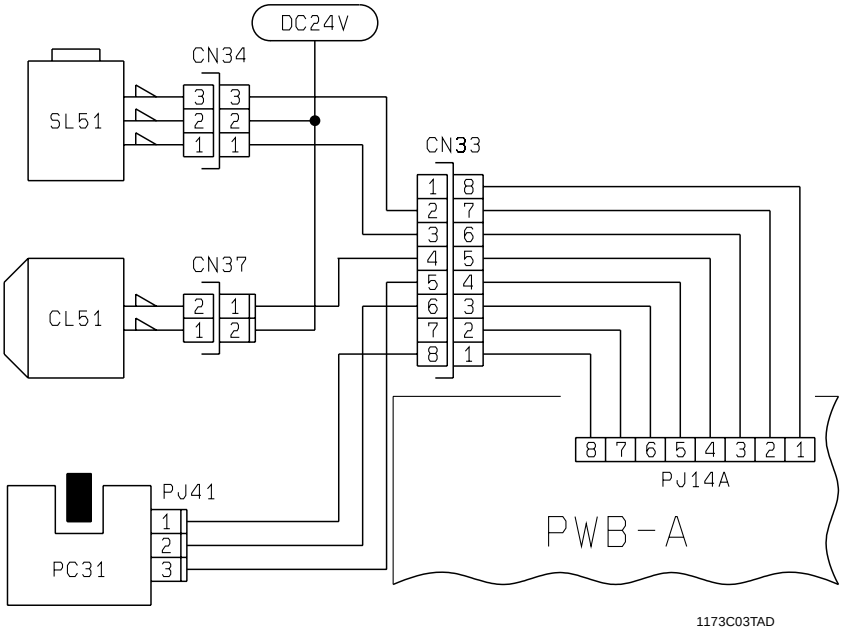


Transport/Separator Misfeed Troubleshooting Procedure

Symptom	Step	Check Item	Result	Action
Paper is stationary at the Synchronizing Roller.	1	Is the paper curled, waved or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	2	Does CL1 operate properly? Using the IC Port Data Check function, set the data of PWB-A (IC4A) BPA4 to "0".	YES	Check the drive transmission path.
	3	Run the "Controller Board Check". Is the malfunction code "C031F" displayed?	YES	Replace PWB-A.
			NO	Replace CL1.
	4	Is a given length of loop formed before the Synchronizing Roller?	NO	Adjust the loop length using the "Loop Adjust (Drawer)" Function of "Tech. Rep. Choice."
	5	Does PC54 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (IC5A) BPB5.	YES	Replace PWB-A.
			NO	Check the operation of the actuator of PC54. If it operates properly, replace PC54.
Paper is stationary near the PC Drum.	1	Is the Pre-Image Transfer Guide Plate deformed or dirty?	YES	Correct, clean or replace the guide plate.
	2	Are the Image Transfer/Paper Separator Corona wires deteriorated or dirty?	YES	Clean or replace the wires.
	3	Is the paper guide at the Paper Separator Corona deformed or dirty?	YES	Clean or replace the paper guide.
	4	Are the Synchronizing Rollers deformed, worn, or dirty with paper dust?	YES	Clean or replace the Synchronizing Rollers.
	5	Run the "Controller Board Check". Is the malfunction code "C031D" or "C031C" displayed?	YES	Replace PWB-A.
			NO	Replace the Image Transfer/ Paper Separator Coronas Assembly or HV1.
Paper is wedged at the Paper Separator Fingers.	1	Are the Paper Separator Fingers deformed or dirty?	YES	Clean or replace the Paper Separator Fingers.
	2	Does SL1 operate properly? Using the IC Port Data Check function, set the data of PWB-A (IC4A) BPA0 to "0".	YES	Check the drive transmission path.
	3	Run the "Controller Board Check". Is the malfunction code "C0323" displayed?	YES	Replace PWB-A.
			NO	Replace SL1.
Paper is stationary on the Suction Belts.	1	Do the Suction Belts turn when the Main Drive Motor runs?	NO	Check the drive gears and timing belt.
	2	Does M3 operate properly? Using the IC Port Data Check function, set the data of PWB-A (IC4A) BPC2 to "0". Does M3 then run at full speed?	YES	Check the Suction Belts.
			NO	Replace M3 or PWB-A.

(3) Multi Bypass Misfeed

Relevant Electrical Parts	
• Manual Feed Paper Empty Sensor PC31 • Manual Feed Paper Take-Up Solenoid SL51 • Manual Feed Paper Take-Up Clutch CL51	• Master Board PWB-A

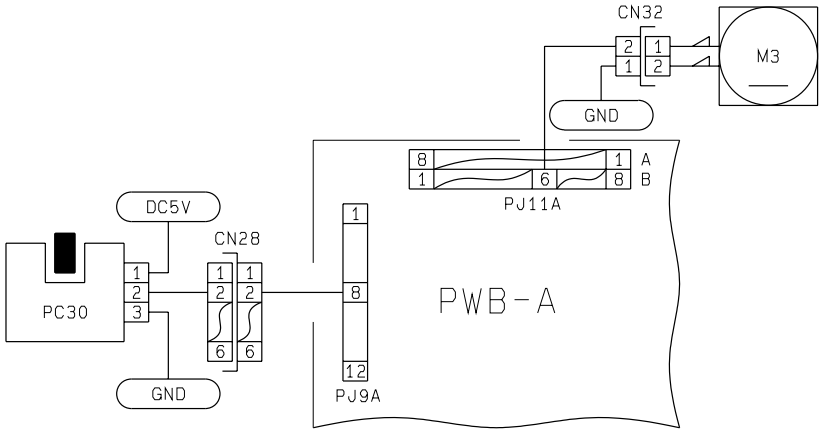


Multi Bypass Misfeed Troubleshooting Procedure

Symptom	Step	Check Item	Result	Action
Paper is not detected.	1	Does PC31 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (IC5A) BPB1.	YES	Replace PWB-A.
			NO	Check the operation of the actuator of PC31. If it operates properly, replace PC31.
Paper is not taken up at all.	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, waved or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	3	Is the Manual Bypass Paper Take-Up Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the Manual Bypass Paper Take-Up Roll.
	4	Does SL51 operate properly? Using the IC Port Data Check function, set the data of PWB-A (IC5A) BPA3 to “0”. Does the roll then go down?	YES	Check the drive transmission path.
	5	Run the “Controller Board Check”. Is the malfunction code “C0339” displayed?	YES	Replace PWB-A.
			NO	Replace SL51.
	6	Does CL51 operate properly? Using the IC Port Data Check function, set the data of PWB-A (IC5A) BPA1 to “0”.	YES	Check the drive transmission path.
	7	Run the “Controller Board Check”. Is the malfunction code “C033B” displayed?	YES	Replace PWB-A.
			NO	Replace CL51.

(4) Fusing/Exit Misfeed

Relevant Electrical Parts	
• Paper Exit Sensor PC30	• Suction Fan Motor M3 • Master Board PWB-A



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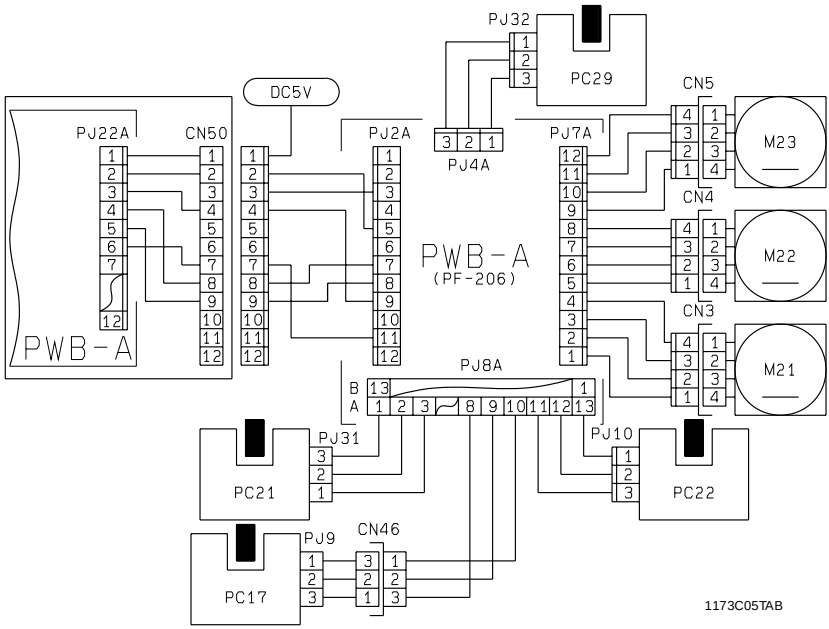
Fusing/Exit Misfeed Troubleshooting Procedure

Symptom	Step	Check Item	Result	Action
Paper is stationary before the Fusing Roller.	1	Is the paper curled, waved or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	2	Is the Fusing Guide Plate deformed or dirty?	YES	Clean, correct or replace the Fusing Guide Plate.
	3	Does M3 operate properly? Using the IC Port Data Check function, set the data of PWB-A (IC4A) BPC2 to “0”. Does M3 then turn at full speed?	YES	Check the Suction Belts.
			NO	Replace M3 or PWB-A.
Paper is stationary at the Fusing Roller.	1	Are the Fusing Rollers dirty or scratched?	YES	Clean or replace the Fusing Rollers.
	2	Are the Fusing Roller Paper Separator Fingers deformed, worn, or dirty?	YES	Clean, correct or replace the defective separator finger.
	3	Is the Cleaning Roller dirty or scratched?	YES	Clean or replace the Cleaning Roller.
Paper is stationary at the Exit Roller.	1	Does PC30 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (IC4A) BPB2.	YES	Replace PWB-A.
			NO	Check the operation of the actuator of PC30. If it operates properly, replace PC30.

(5) PF-206 Paper Take-Up Misfeed

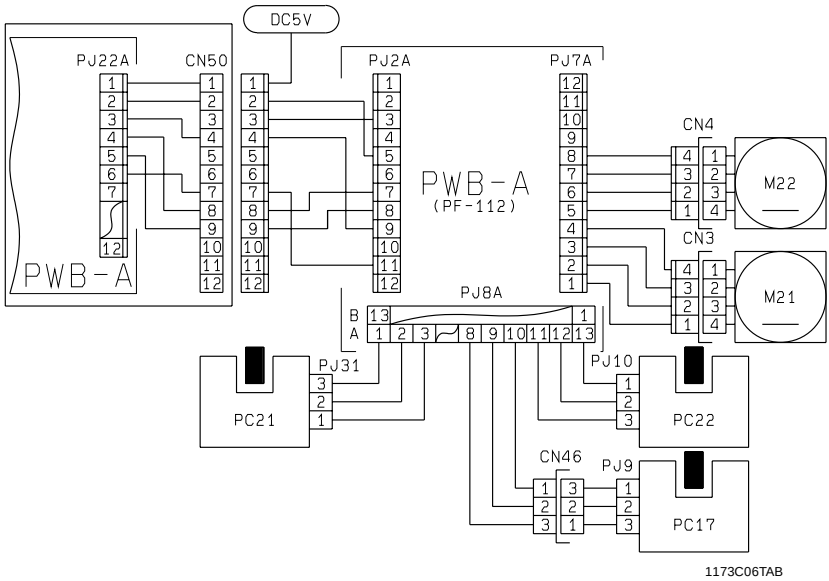
Relevant Electrical Parts	
• 3rd Drawer Paper Take-Up Sensor PC21 • 4th Drawer Paper Take-Up Sensor PC29 • Vertical Transport Sensor 3 PC17 • Vertical Transport Sensor 4 PC22	• 3rd Drawer Paper Take-Up Motor M22 • 4th Drawer Paper Take-Up Motor M23 • Vertical Transport Motor M21 • PF-206 Master Board PWB-A • Copier Master Board PWB-A



Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all. • Paper is stationary before the Paper Take-Up Sensor.	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, waved or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	3	Are the Paper Take-Up Roll and Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up Roll and/or Separator Roll.
	4	Is the Paper Take-Up Motor (M22, M23) turning when the Start key is pressed?	YES	Check the motor for overload.
			NO	Replace PWB-A (PF-206) or PWB-A. Replace M22 and/or M23.
Paper is stationary at the Vertical Transport Section.	1	Is Vertical Transport Motor M21 turning when the Start key is pressed?	YES	Check the motor for overload.
			NO	Replace PWB-A (PF-206) or PWB-A. Replace M21.
	2	Are the Vertical Transport Rollers deformed, worn or dirty with paper dust?	YES	Clean or replace the Vertical Transport Rollers.
	3	Does PC17 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (200) IC1A PC3.	NO	Check the operation of the actuator of PC17. If it operates properly, replace PC17.
	4	Does PC22 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (200) IC1A PC2.	NO	Check the operation of the actuator of PC22. If it operates properly, replace PC22.
	5	Does PC21 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (200) IC1A PE3.	NO	Check the operation of the actuator of PC21. If it operates properly, replace PC21.
	6	Does PC29 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (200) IC1A PB3.	YES	Replace PWB-A (PF-206) or PWB-A.
			NO	Check the operation of the actuator of PC29. If it operates properly, replace PC29.

(6) PF-112 Paper Take-Up Misfeed

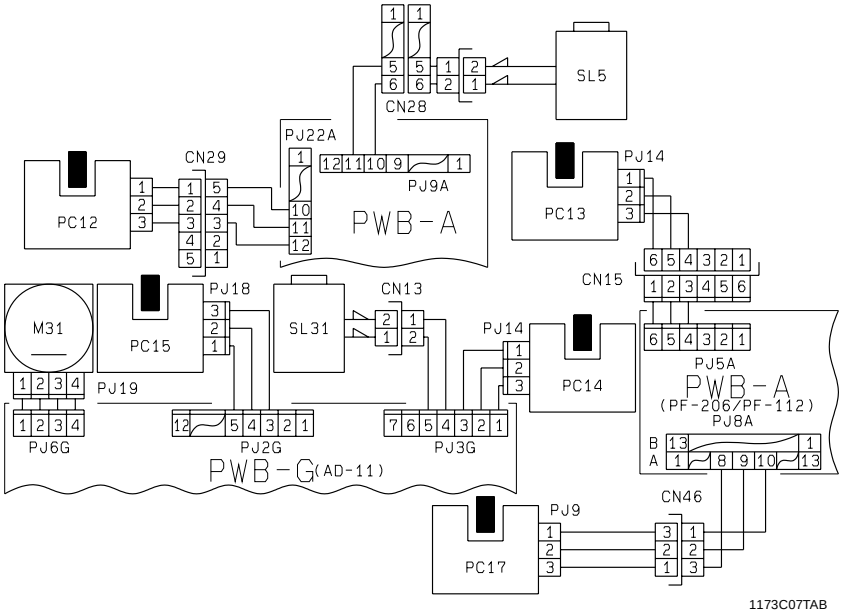
Relevant Electrical Parts	
• 3rd Drawer Paper Take-Up Sensor PC21 • Vertical Transport Sensor 3 PC17 • Vertical Transport Sensor 4 PC22	• 3rd Drawer Paper Take-Up Motor M22 • Vertical Transport Motor M21 • PF-112 Master Board PWB-A • Copier Master Board PWB-A



Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all. • Paper is stationary before the Paper Take-Up Sensor.	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, waved or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	3	Are the Paper Take-Up Roll and Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up Roll and/or Separator Roll.
	4	Is 3rd Drawer Paper Take-Up Motor M22 turning when the Start key is pressed?	YES	Check the motor for overload.
			NO	Replace PWB-A (PF-112) or PWB-A. Replace M22.
Paper is stationary at the Vertical Transport Section.	1	Is Vertical Transport Motor M21 turning when the Start Key is pressed?	YES	Check the motor for overload.
			NO	Replace PWB-A (PF-112) or PWB-A. Replace M21.
	2	Are the Vertical Transport Rollers deformed, worn or dirty with paper dust?	YES	Clean or replace the Vertical Transport Rollers.
	3	Does PC17 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC1A) PC3.	NO	Check the operation of the actuator of PC17. If it operates properly, replace PC17.
	4	Does PC22 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC1A) PC2.	NO	Check the operation of the actuator of PC22. If it operates properly, replace PC22.
	5	Does PC21 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC1A) PE3.	YES	Replace PWB-A (PF-112) or PWB-A.
			NO	Check the operation of the actuator of PC21. If it operates properly, replace PC21.

(7) AD-11 Vertical Transport/Storage Misfeed

Relevant Electrical Parts	
• Duplex Unit Vertical Transport Sensor PC12 • Duplex Unit Turnover Path Sensor PC13 • Duplex Unit Paper Entry Sensor PC14 • Duplex Unit Paper Empty Sensor PC15 • Vertical Transport Sensor 3 PC17	• Exit/Duplex Switching Solenoid SL5 • Duplex Unit Gate Switching Solenoid SL31 • Duplex Unit Drive Motor M31 • PF-206/104 Master Board PWB-A • Copier Master Board PWB-A • Duplex Unit Master Board PWB-G



AD-11 Vertical Transport Misfeed Troubleshooting Procedure

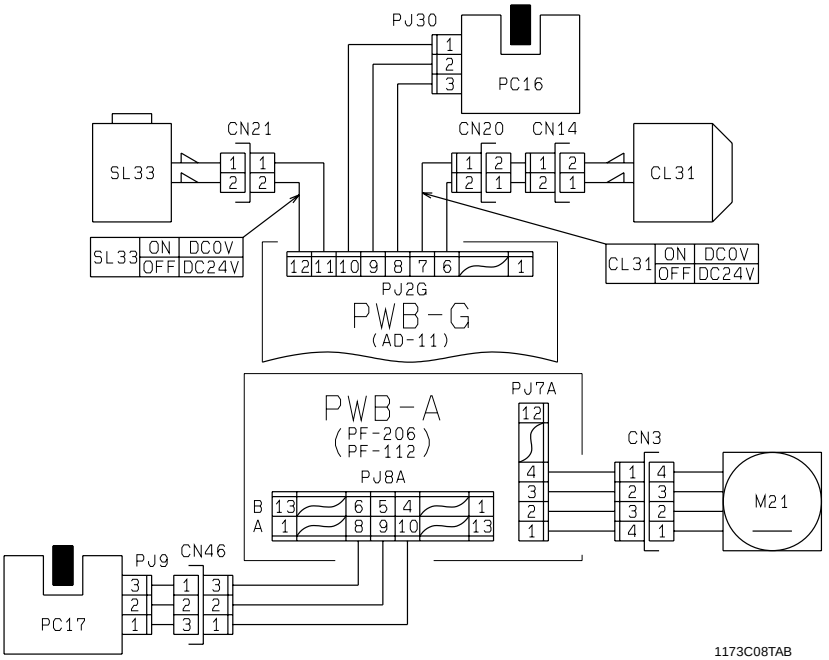
Symptom	Step	Check Item	Result	Action
Paper is stationary at the copier exit section.	1	Does SL5 operate properly? Using the IC Port Data Check function, set the data of PWB-A (IC4A) BPA5 to “0”.	YES	Check the drive transmission path.
	2	Run the “Controller Board Check”. Is the malfunction code “C031E” displayed?	YES	Replace PWB-A.
			NO	Replace SL5.
Paper is stationary at the Duplex Unit Vertical Transport Section.	1	Do the Vertical Transport Roller and drive coupling operate properly when M31 is running? Using the IC Port Data Check function, set the data of PWB-G (Dup) (IC1G) PB3 to “0”.	NO	Check the gears, belts and rollers.
	2	Does PC12 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (IC5A) BPB0.	YES	Replace PWB-A.
			NO	Check the operation of the actuator of PC12. If it operates properly, replace PC12.
Paper is stationary at the Duplex Unit Turnover Section.	1	Do the Paddle Roller, Slip Roller and drive coupling operate properly when M31 is running? Using the IC Port Data Check function, set the data of PWB-G (Dup) (IC1G) PB3 to “0”.	NO	Check the gears, belts and rollers.
	2	Does PC13 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (200/400) (IC2A) BPB0.	YES	Replace PWB-A or PWB-A (PF-206, PF-112).
			NO	Check the operation of the actuator of PC13. If it operates properly, replace PC13.

AD-11 Storage Misfeed Troubleshooting Procedure

Symptom	Step	Check Item	Result	Action
The leading edge of the paper is stationary inside the Duplex Unit.	1	Is the Paper Guide Mylar dirty or deformed?	YES	Clean or replace the Mylar.
	2	Does PC14 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (Dup) (IC1G) PC1.	YES	Replace PWB-G, PWB-A or PWB-A (PF-206, PF-112).
			NO	Check the operation of the actuator of PC14. If it operates properly, replace PC14.
	3	Does SL31 operate properly? Using the IC Port Data Check function, set the data of PWB-A (Dup) (IC1G) PH1 to “0”.	YES	Check the operation of the Gate Switching Lever.
			NO	Replace PWB-G, PWB-A, PWB-A (PF-206, PF-112) and/or SL31.
Paper is stationary at the Storage Section.	1	Does PC15 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (Dup) (IC1G) PC2.	YES	Replace PWB-G, PWB-A or PWB-A (PF-206, PF-112).
			NO	Check the operation of the actuator of PC15. If it operates properly, replace PC15.

(8) AD-11 Paper Take-Up Misfeed

Relevant Electrical Parts	
• Duplex Unit Paper Take-Up Sensor PC16	• Duplex Unit Pick-Up Solenoid SL33
• Vertical Transport Sensor 3 PC17	• PF-206/112 Master Board PWB-A
• Vertical Transport Motor M21	• Copier Master Board PWB-A
• Duplex Unit Paper Take-Up Clutch CL31	• Duplex Unit Master Board PWB-G



AD-11 Paper Take-Up Misfeed Troubleshooting Procedure

Symptom	Step	Check Item	Result	Action
Paper is not taken up at all.	1	Does SL33 operate properly? Using the IC Port Data Check function, set the data of PWB-A (Dup) (IC1G) PB2 to “0”.	YES	Check the Pick-Up Mechanism.
			NO	Replace PWB-G, PWB-A, PWB-A (PF-206, PF-112) and/or SL33.
	2	Does CL31 operate properly? Using the IC Port Data Check function, set the data of PWB-A (Dup) (IC1G) PA3 to “0”.	YES	Check the drive transmission path.
			NO	Replace PWB-G, PWB-A, PWB-A (PF-206, PF-112) and/or CL31.
	3	Are the Take-Up Roll, Feed Roll and Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the defective roll.
Paper is stationary at the Vertical Transport Section.	1	Is Vertical Transport Motor M21 turning when a copy is taken up and fed into the copier from the Duplex Unit?	YES	Check the motor for overload.
			NO	Replace PWB-A, PWB-A (PF-206, PF-112) and/or M21.
	2	Are the Vertical Transport Rollers deformed, worn, or dirty with paper dust?	YES	Clean or replace the Rolls.
	3	Does PC17 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (200, 400) (IC1A) PC3.	YES	Replace PWB-A or PWB-A (PF-206, PF-112).
			NO	Check the operation of the actuator of PC17. If it operates properly, replace PC17.
	4	Does PC16 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (Dup) (IC1G) PC0.	YES	Replace PWB-G, PWB-A or PWB-A (PF-206, PF-112).
			NO	Check the operation of the actuator of PC16. If it operates properly, replace PC16.

4 MALFUNCTIONS

4-1. Detection Timings Classified by Malfunction Codes

- The codes preceded by an asterisk (✻) are the candidates for isolated malfunctions.
- Malfunctions can be reset by the following procedure.

Malfunction Resetting Procedure

- *Open and close the Front Door. The Trouble Reset Switch must be pressed to reset the malfunction of the Fusing and Exposure Lamp Sections.*
- *Disconnect and connect the option or open and close the option door for malfunctions of options.*

C000## Drive Malfunctions

✻	Code	Description	Detection Timing
	C0000	Main Drive Motor M9's failure to turn	The lock signal remains HIGH for a continuous 1.5-second or more period while M9 is energized.
	C0001	Main Drive Motor M9 turning at abnormal timing	The lock signal remains LOW for a continuous 1-second or more period while M9 is deenergized.
	C0010	PC Drive Motor M1's failure to turn	The lock signal remains HIGH for a continuous 1.5-second or more period while M1 is energized.
	C0011	PC Drive Motor M1 turning at abnormal timing	The lock signal remains LOW for a continuous 1-second or more period while M1 is deenergized.
	C004A	Optical section Cooling Fan Motor M2's failure to turn	The lock signal remains HIGH for a continuous 2-second or more period while M2 is energized.
✻	C004b	Optical section Cooling Fan Motor M2 turning at abnormal timing	The lock signal remains LOW for a continuous 10-second or more period while M2 is deenergized.
	C004C	Cooling Fan Motor M7's failure to turn	• The lock signal remains HIGH for a continuous 4-second or more period while M7 is energized. • The lock signal remains HIGH for a continuous 12-second or more period after the Power Switch has been turned ON.
	C0070	Toner Replenishing Motor M8's failure to turn	• Toner Hopper Home Position Sensor PC112 does not go from HIGH to LOW within 12 seconds after M8 has been energized. • PC112 does not go LOW within 12 seconds after M8 has been energized and PC112 gone HIGH.
	C0071	Toner Replenishing Motor M8 turning at abnormal timing	PC112 is HIGH 2 seconds after M8 has been deenergized.

C02## PC Drum Charge Corona Malfunction

✻	Code	Description	Detection Timing
	C0200	PC Drum / Image Transfer / Separator Charge Corona malfunction	The leak signal remains ON for a continuous 1-second or more period after the PC Drum / Image Transfer / Separator Charge Corona output has been turned ON.

C03## Master Board/Harness Malfunctions

- The copier performs a self-diagnostic sequence to determine if the microprocessor outputs a signal to each of the IC ports on Master Board PWB-A properly. It is intended for detecting the following malfunctions (C03##).
- Any malfunction is detected when the “Controller Board Check” available from the “I/O Check” function of the Tech. Rep. mode is executed.
- If the microprocessor fails to output any of these signals or if any of the electronic components on the board (driver IC, etc.) is faulty, the copier determines that there is a faulty condition existing and shows the corresponding malfunction code on the Touch Panel.
- C0350, C0351 or C0352 is displayed when there is a communication fault between the copier and paper feeder option or Duplex Unit, and is detected as an isolated malfunction when the Power Switch is turned ON.

✻	Code	Description	Master Board Port
	C0300	Port diagnosis cannot be started.	—
	C0310	Drum Dehumidifying Heater H2 REM signal	IC1A P45
	C0311	Fusing Heater Lamp H1 REM signal	IC1A P57
	C0312	AVR REM signal	IC1A P61
	C0313	AE Sensor Board PWB-H PWM signal	IC1A P60
	C0314	Copy vendor count (during copy cycle)	IC3A APA1
	C0315	Copy vendor count (size)	IC3A APA0
	C0316	2nd Drawer Paper Take-Up Motor M12 energization	IC3A ϕ1
	C0317	1st Drawer Paper Take-Up Motor M11 energization	IC3A ϕ0
	C0318	Original size detection	IC4A APA7
	C0319	Original size detection marketing area 2	IC4A APA6
	C031A	Original size detection marketing area 1	IC4A APA5
	C031B	Main Drive Motor M9 REM signal	IC4A APC2
	C031C	Separator/Developing Bias output REM signal	IC4A BPA7
	C031D	PC Drum Charge/Image Transfer output REM signal	IC4A BPA6
	C031E	Exit/Duplex Switching Solenoid SL5	IC4A BPA5
	C031F	Synchronizing Roller Clutch	IC4A BPA4
	C0320	Paper Transport Clutch CL2	IC4A BPA3
	C0321	PC Drive Motor M1 REM signal	IC4A BPA2
	C0322	Main Erase Lamp LA2 REM signal	IC4A BPA1
	C0323	Separator Solenoid SL1 REM signal	IC4A BPA0
	C0324	Toner Replenishing Motor M8 REM signal	IC4A BPC3
	C0325	2nd Drawer Paper Lift-Up Motor (–)	IC5A APA7
	C0326	2nd Drawer Paper Lift-Up Motor (+)	IC5A APA6
	C0327	1st Drawer Paper Lift-Up Motor (–)	IC5A APA5
	C0328	1st Drawer Paper Lift-Up Motor (+)	IC5A APA4
	C0329	2nd Drawer Paper Take-Up Motor M12 ENABLE	IC5A APA1
	C032A	1st Drawer Paper Take-Up Motor M11 ENABLE	IC5A APA0
	C032B	Image Erase Lamp 2	IC5A APB7
	C032C	Image Erase Lamp 1	IC5A APB6
	C032D	Image Erase Lamp 0	IC5A APB5

✻	Code	Description	Master Board Port
	C032E	Image Erase Lamp 10	IC5A APC7
	C033F	Image Erase Lamp 9	IC5A APC6
	C0330	Image Erase Lamp 8	IC5A APC5
	C0331	Image Erase Lamp 7	IC5A APC4
	C0332	Image Erase Lamp 6	IC5A APC3
	C0333	Image Erase Lamp 5	IC5A APC2
	C0334	Image Erase Lamp 4	IC5A APC1
	C0335	Image Erase Lamp 3	IC5A APC0
	C0336	Warming-up completion signal	IC5A BPA7
	C0337	Main Drive Motor M9 REM signal (during copy cycle)	IC5A BPA6
	C0338	Fusing Heater Lamp SSR (SSR2) REM signal (200V power line only)	IC5A BPA5
	C0339	Manual Feed Paper Take-Up Solenoid SL51 DOWN signal	IC5A BPA3
	C033A	Manual Feed Paper Take-Up Solenoid SL51 UP signal	IC5A BPA2
	C033B	Manual Feed Paper Take-Up Clutch CL51	IC5A BPA1
	C033C	AVR PWM signal	IC4A TOUT
	C033D	Grid PWM signal	IC5A TOUT
✻	C0350	Paper feeder option communication output signal 1	IC3A SO0
✻	C0351	Paper feeder option communication output signal 2	IC3A SO1
✻	C0352	Duplex Unit communication output signal	IC3A SO2

C04## Exposure Lamp Malfunctions

✻	Code	Description	Detection Timing
	C0400	Exposure Lamp LA1's failure to turn ON	The output from AE Sensor Board PWB-H does not become 4.27V or less for the period between when LA1 turns ON and the Scanner starts a scan motion and when the Image Leading Edge signal (BASE) turns ON.
	C0410	Exposure Lamp LA1 turning ON at abnormal timing	With LA1 OFF, the output from PWB-H remains 3.9V or less for a continuous 3-second period at any timing while the Scanner is at the home position or the Original Cover is lowered.

C05## Fusing Malfunctions

✻	Code	Description	Detection Timing
	C0500	Warming-up failure (Fusing Heater Lamp failure)	If a given period of time has elapsed during warming-up, the surface temperature of the Upper Fusing Roller does not reach: • 50°C within 30 seconds; • 100°C within 40 seconds after it has reached 50°C; or • 160°C within 40 seconds after it has reached 100°C. • Warm-up is not completed within 40 seconds after exiting energy saver mode. The copier does not complete its warming-up cycle within 40 seconds after the above surface temperature has reached 160°C.
	C0510	Abnormally low fusing temperature (Fusing Heater Lamp failure)	The surface temperature of the Upper Fusing Roller remains 120°C or less for a continuous 5-second or more period after the copier has warmed up.
	C0520	Abnormally high fusing temperature (Fusing Heater Lamp turning ON at abnormal timing)	The surface temperature of the Upper Fusing Roller remains 230°C or more or the temperature on the edge of the roller remains 250°C for a continuous 1-second or more period after the copier has warmed up.

C06## Optical Malfunctions

*	Code	Description	Detection Timing
	C0600	Scanner Motor M4 malfunction	• When the Scanner is at a position other than home, Scanner Reference Position Sensor PC81 does not go from HIGH to LOW even after the lapse of 20 seconds after the Power Switch has been turned ON. • When the Scanner is at the home position, PC81 does not go from LOW to HIGH even after the lapse of 5 seconds after the Scanner has started a scan motion. • PC81 does not go from LOW to HIGH even after the lapse of 20 seconds after the Scanner has started a scan motion.
	C0610	Lens Motor M5 malfunction	• The output from Lens Reference Position Sensor PC90 does not go from HIGH to LOW, or vice versa, even after the lapse of 15 seconds after M5 has started turning.
	C0620	Mirror Motor M6 malfunction	• The output from the Mirror Reference Position Sensor PC86 does not go from HIGH to LOW even after the lapse of 10 seconds after M6 has started turning. • The output from PC86 does not go from LOW to HIGH even after the lapse of 3 seconds after M6 has started turning.
	C06F0	SHOME signal failure (Signal does not go LOW)	• The SHOME signal does not go LOW even after the lapse of 30 seconds after the SCAN signal has gone LOW. • The BASE signal does not go LOW even after the lapse of 30 seconds after the SCEND signal has gone from LOW to HIGH. • In the F3 or F5 mode: The SHOME signal does not go LOW even after the lapse of 30 seconds after the ENABLE signal has gone LOW.
	C06F1	SHOME signal failure (Signal does not go HIGH)	The SHOME signal does not go HIGH even after the lapse of 7 seconds after it has gone LOW.
	C06F2	BASE signal failure (Signal does not go LOW)	The BASE signal does not go LOW even after the lapse of 5 seconds after the ERASE OFF signal has gone LOW.
	C06F3	BASE signal failure (Signal does not go HIGH)	The BASE signal does not go HIGH even after the lapse of 5 seconds after the SCEND has gone HIGH.
	C06F4	TRON signal failure (Signal does not go LOW)	• The TRON signal does not go LOW even after the lapse of 5 seconds after the BASE signal has gone LOW. • In the F3 or F5 mode: The TRON signal does not go LOW even after the lapse of 10 seconds after the SCAN signal has gone LOW.
	C06F5	TRON signal failure (Signal does not go HIGH)	The TRON signal does not go HIGH even after the lapse of 5 seconds after it has gone LOW.

✻	Code	Description	Detection Timing
	C06F6	SCEND signal failure (Signal does not go LOW)	The SCEND signal does not go LOW even after the lapse of 5 seconds after the TRON signal has gone LOW.
	C06F7	SCEND signal failure (Signal does not go HIGH)	The SCEND signal does not go HIGH even after the lapse of 5 seconds after it has gone LOW.
	C06FA	ERASE OFF signal failure (Signal does not go LOW)	The ERASE OFF signal does not go LOW even after the lapse of 5 seconds after the SHOME signal has gone HIGH.
	C06Fb	ERASE OFF signal failure (Signal does not go HIGH)	The ERASE OFF signal does not go HIGH even after the lapse of 5 seconds after it has gone LOW.

C09## Paper Take-Up Malfunctions

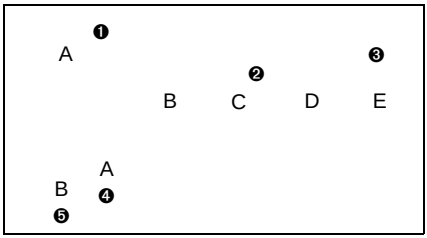
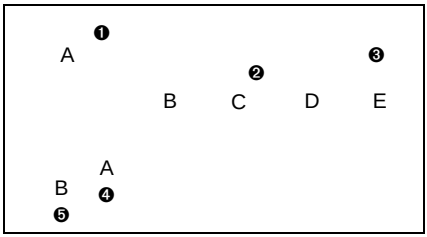
✻	Code	Description	Detection Timing
✻	C0900	3rd Drawer upward motion failure	See the PF-206 Service Manual.
	C0904	3rd Drawer Lift-Up Motor M24's failure to turn	
	C0910	2nd Drawer upward motion failure	• 2nd Drawer Lift-Up Sensor PC66 is not blocked (L) even after the lapse of 5 seconds after 2nd Drawer Paper Lift-Up Motor M14 has been energized. • PC66 is not blocked (L) even if 2nd Drawer Lift-Up Motor Pulse Sensor PC68 detects 75 pulses after M14 has been energized.
	C0914	2nd Drawer Lift-Up Motor M14's failure to turn	• PC68 detects no pulses for the period of 500 msec-onds while M14 is being energized.
	C0920	1st Drawer upward motion failure	• 1st Drawer Lift-Up Sensor PC65 is not blocked (L) even after the lapse of 5 seconds after 1st Drawer Paper Lift-Up Motor M13 has been energized. • PC65 is not blocked (L) even if 1st Drawer Lift-Up Motor Pulse Sensor PC67 detects 75 pulses after M13 has been energized.
	C0924	1st Drawer Lift-Up Motor M13's failure to turn	• PC67 detects no pulses for the period of 500 msec-onds while M13 is being energized.
	C0950	4th Drawer upward motion failure	See the PF-206 Service Manual.
	C0954	4th Drawer Paper Lift-Up Motor M25's failure to turn	

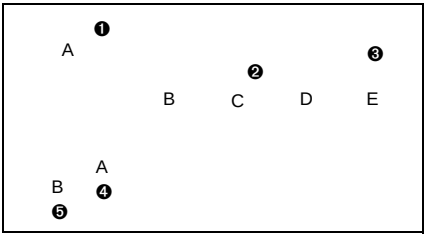
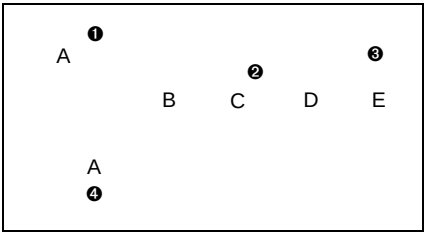
✻	Code	Description	Detection Timing
	C0990	Main Tray upward motion failure	See PF-112 SERVICE MANUAL.
	C0991	Main Tray downward motion failure	
	C0992	Main Tray downward motion failure	
	C0993	Main Tray upward motion failure	
	C0994	Elevator Motor's failure to turn	
✻	C0996	Main Tray ejection failure	
	C0998	Shifter transfer failure	
	C0999	Shifter return failure	
	C099A	Shifter return failure	
	C099b	Shifter transfer failure	
	C099C	Shift Motor's failure to turn	
	C099E	Shift Gate position detecting failure	
	C099F	Shift Gate position detecting failure	

C0F## Sensor Malfunctions

✻	Code	Description	Detection Timing
✻	C0F02	Original Size Detecting Board UN2 malfunction	In F7 mode: • The Busy signal does not go LOW within approx. 0.8 sec. after the initial signal has gone LOW, or undefined data is input to the Master CPU. • The Busy signal does not go HIGH within approx. 5 sec. after the initial signal has gone LOW. • Under normal conditions: The fixed-cycle pulse signal (Busy) remains HIGH or LOW for 3 seconds or more. • Undefined data is input to the Master CPU. When the Power Switch is ON: • The Busy signal remains HIGH or LOW for 5 seconds or more. • Undefined data is input to the Master CPU.
	C0F10	AE Sensor Board PWB-H malfunction	Under normal conditions: • The output from PWB-H remains less than approx. 0.18V for a continuous 2-second period, with the Exposure Lamp OFF, the Scanner at the home position, and the Original Cover lowered. In F5 mode: • The output from PWB-H is less than 1.8V when the gain of the AE Sensor is 100%. • The output from PWB-H is 1.8V or more when the gain of the AE Sensor is 0%. • The output from PWB-H is outside the target range (1.8 ± 0.05V) when the gain of the AE Sensor is 50%. F5 or FF for every 100 copies made: • The output from PWB-H does not fall within the target range (1.8 ± 0.05V) during adjustment procedures by image stabilization control.
✻	C0F20	AIDC Sensor Board PWB-G variation correction failure	In the initial F5 or FF mode, or F5 or FF for every 100 copies made: • The output from PWB-G is 1V or more when the load resistance is made maximum by the 4-bit analog switch. • The output from PWB-G is less than 1V when the load resistance is made minimum by the 4-bit analog switch. • The output from PWB-G does not fall within the 0.9V-1.1V range when the intensity of PWB-G's LED is varied.
✻	C0F22	AIDC Sensor Board PWB-G VG correction failure	In the initial F5 or FF mode, or F5 or FF for every 100 copies made: 1. The grid voltage (VG) of 550V is output. 2. A solid black pattern is produced and the PWB-G output is sampled. 3. The average of the above readings is 1.0V or less.

✻	Code	Description	Detection Timing
✻	C0F23	AIDC Sensor Board PWB-G exposure correction failure	In the initial F5 or FF mode, or F5 or FF for every 100 copies made: 1. The Exposure Lamp is turned ON with 58V. 2. A halftone pattern is produced and the PWB-G output is sampled. 3. If the average does not fall within the target range, the exposure level is varied. 4. The average does not fall within the target range (1.11V to 3.33V) even after steps 1 to 3 have been repeated 15 times.
	C0F31	ATDC Sensor UN3 adjustment failure	The UN3 output does not fall within the target range (2.46V to 2.54V) in the F8 mode.
	C0F30	ATDC Sensor UN3 failure	• The output from UN3 remains 0.5V or less, or 4.6V or more, for a continuous 3-second period 2 seconds after PC Drive Motor M1 has started turning.
✻	C0F79	• 3rd Drawer Paper Empty Sensor PC20 failure • Main Tray Paper Empty Board PWB-E failure • Shift Tray Paper Empty Sensor PC1 failure	See the PF-112 Service Manual.

	Code	Description	Sensor Layout
Original Size Detecting Board*	C0FE1	Original Size Detecting Sensor ❶ failure	<Detection Timing> After having read the output data from PC113 to PC117, UN2 determines that there is a failure. <Sensor Layout> (Metric Areas) • ❶: PC117, ❷: PC113, ❸: PC115 (option), ❹: PC114, ❺: PC116 (option) ✻ PC115 and PC116 are standard for mixed inch/metric areas. • A to E: Sensor locations  (Inch Areas) • ❶: PC117 (option), ❷: PC113, ❸: PC115 (option), ❹: PC114, ❺: PC116 (option) 
	C0FE2	Original Size Detecting Sensor ❷ failure	
	C0FE3	Original Size Detecting Sensors ❶ and ❷ failure	
	C0FE4	Original Size Detecting Sensor ❸ failure	
	C0FE5	Original Size Detecting Sensors ❶ and ❸ failure	
	C0FE6	Original Size Detecting Sensors ❷ and ❸ failure	
	C0FE7	Original Size Detecting Sensors ❶, ❷ and ❸ failure	
	C0FE8	Original Size Detecting Sensor ❹ failure	
	C0FE9	Original Size Detecting Sensors ❶ and ❹ failure	
	C0FEA	Original Size Detecting Sensors ❷ and ❹ failure	
	C0FEB	Original Size Detecting Sensors ❶,❷ and ❹ failure	
	C0FEC	Original Size Detecting Sensors ❸ and ❹ failure	
	C0FED	Original Size Detecting Sensors ❶, ❸ and ❹ failure	
	C0FEE	Original Size Detecting Sensors ❷, ❸ and ❹ failure	
	C0FEF	Original Size Detecting Sensors ❶, ❷, ❸ and ❹ failure	

	Code	Description	Sensor Layout
Original Size Detecting Board*	C0FF0	Original Size Detecting Sensor ❺ failure	(Metric Areas) • ❶: PC117, ❷: PC113, ❸: PC115 (option), ❹: PC114, ❺: PC116 (option) ✻ PC115 and PC116 are standard for mixed inch/metric areas. • A to E: Sensor locations.  (Inch Areas) • ❶: PC117 (option),❷: PC113, ❸: PC115 (option),❹: PC114, ❺: PC116 (option) 
	C0FF1	Original Size Detecting Sensors ❶ and ❺ failure	
	C0FF2	Original Size Detecting Sensors ❷ and ❺ failure	
	C0FF3	Original Size Detecting Sensors ❶,❷, and ❺ failure	
	C0FF4	Original Size Detecting Sensors ❸ and ❺ failure	
	C0FF5	Original Size Detecting Sensors ❶,❸, and ❺ failure	
	C0FF6	Original Size Detecting Sensors ❷,❸, and ❺ failure	
	C0FF7	Original Size Detecting Sensors ❶,❷,❸, and ❺ failure	
	C0FF8	Original Size Detecting Sensors ❹ and ❺ failure	
	C0FF9	Original Size Detecting Sensors ❶,❹, and ❺ failure	
	C0FFA	Original Size Detecting Sensors ❷,❹, and ❺ failure	
	C0FFB	Original Size Detecting Sensors ❶,❷,❹, and ❺ failure	
	C0FFC	Original Size Detecting Sensors ❸,❹, and ❺ failure	
	C0FFD	Original Size Detecting Sensors ❶,❸,❹, and ❺ failure	
	C0FFE	Original Size Detecting Sensors ❷,❸,❹, and ❺ failure	
	C0FFF	Original Size Detecting Sensors ❶,❷,❸,❹, and ❺ failure (Metric Areas)	

C0b## Staple Sorter/Sorter Malfunctions

*	Code	Description	Detection Timing
	C0b00	Transport drive malfunction	See the ST-210/S-207 Service Manual.
	C0b01		
	C0b10	Paper Clamp Unit motion failure	See the ST-210/S-207 and ST-101/S-104 Service Manuals.
	C0b11		
	C0b12		See the ST-210/S-207 Service Manual.
	C0b13		
	C0b30	Paper Aligning Mechanism drive failure	See the ST-210/S-207 and ST-101/S-104 Service Manuals.
	C0b31		
	C0b50	Stapling failure	
	C0b51		
	C0b52		
	C0b53		
	C0b60	Bin motion failure	See the ST-210/S-207 and ST-101/S-104 Service Manuals.
*	C0b61		
	C0b62		
	C0b63		
	C0b64		
	C0b65		
	C0b70	Hole punching failure	See the ST-210/S-207 Service Manual.
	C0b71		
	C0b72		

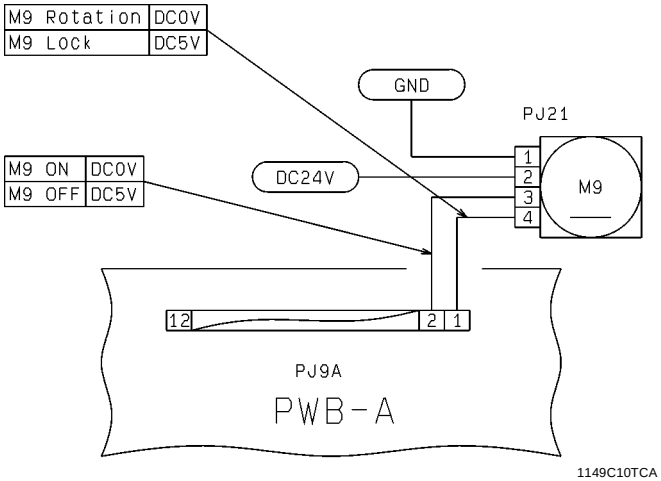
C0d## Duplex Unit Malfunctions

*	Code	Description	Detection Timing
*	C0d00	Front/Rear Edge Guide Plates home position detection failure	See the PF-6D/AD-11 Service Manual
*	C0d20	Gate Unit home position detection failure	
*	C0d50	Duplex Unit Drive Motor M31's failure to turn	
*	C0d51	Duplex Unit Drive Motor M31 turning at abnormal timing	

4-2. Troubleshooting Procedures by Malfunction Codes

(1) C0000: Main Drive Motor M9's Failure to Turn
C0001: Main Drive Motor M9 Turning at Abnormal Timing

Relevant Electrical Parts	
• Main Drive Motor M9	• Master Board PWB-A



C0000

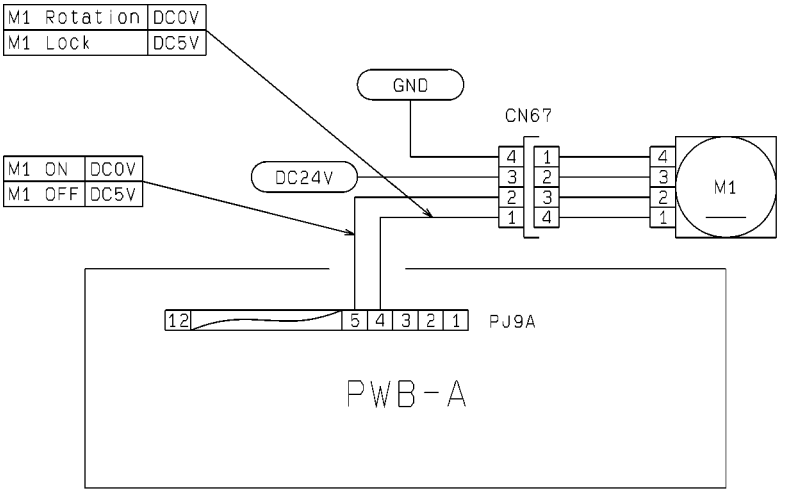
Step	Check Item	Result	Action
1	Does M9 turn? Set the data of PWB-A (IC4A) APC2 to “0.”	YES	Replace PWB-A.
2	Perform the “Controller Board Check.” Is malfunction code “C031B” displayed?	YES	Replace PWB-A.
		NO	• Check the drive coupling. • Replace M9.

C0001

Step	Check Item	Result	Action
1	Does M9 turn when the malfunction is reset?	YES	Replace PWB-A.
2	Is malfunction code “C0001” displayed again?	YES	Replace PWB-A.

(2) C0010: PC Drive Motor M1's Failure to Turn
C0011: PC Drive Motor M1 Turning at Abnormal Timing

Relevant Electrical Parts	
• PC Drive Motor M1	• Master Board PWB-A



C0010

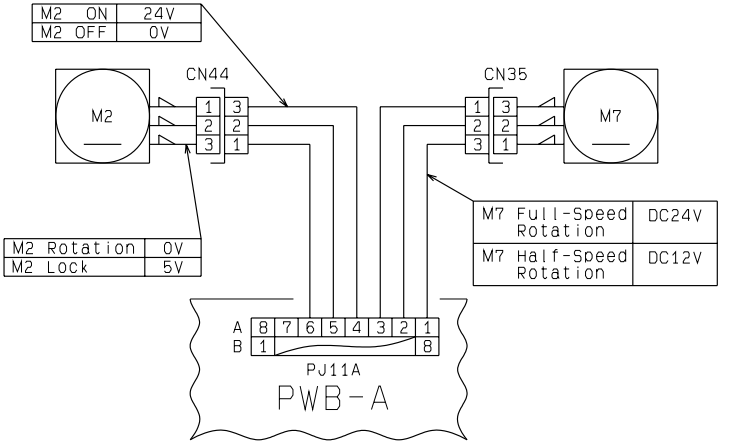
Step	Check Item	Result	Action
1	Does M1 turn? Set the data of PWB-A (IC4A) BPA2 to “0.”	YES	Replace PWB-A.
2	Perform the “Controller Board Check.” Is malfunction code “C0321” displayed?	YES	Replace PWB-A.
		NO	• Check the drive coupling. • Replace M1.

C0011

Step	Check Item	Result	Action
1	Does M1 turn when the malfunction is reset?	YES	Replace PWB-A.
2	Is malfunction code “C0011” displayed again?	YES	Replace PWB-A.

(3) C004A: Optical Section Cooling Fan Motor M2's Failure to Turn
C004b: Optical Section Cooling Fan Motor M2 Turning at Abnormal Timing
C004C: Cooling Fan Motor M7's Failure to Turn

Relevant Electrical Parts	
• Optical Section Cooling Fan Motor M2 • Cooling Fan Motor M7	• Master Board PWB-A



1173C10TAA

C004A

Step	Check Item	Result	Action
1	Does M2 turn? Set the data of PWB-A (IC4A) BPC0 to “0.”	YES	Replace PWB-A.
		NO	Replace M2.

C004b

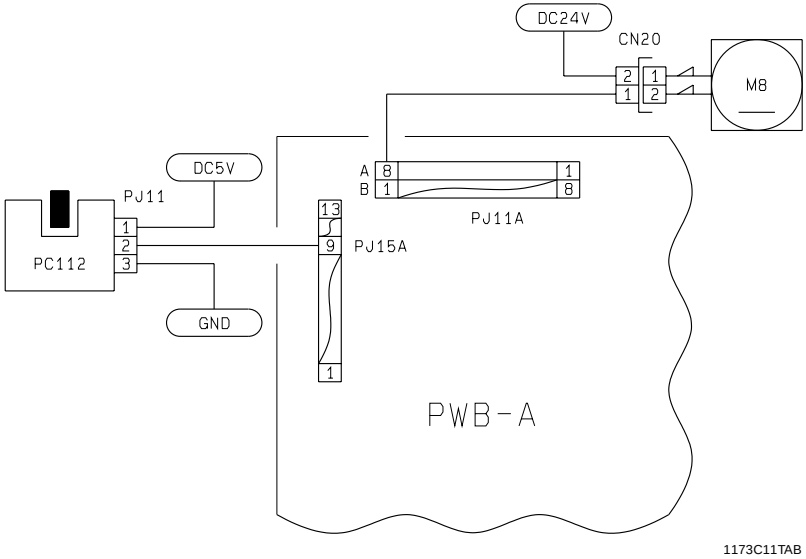
Step	Check Item	Result	Action
1	Does M2 turn when the malfunction is reset?	YES	Replace PWB-A.
2	Is malfunction code “C004b” displayed?	YES	Replace PWB-A.

C004C

Step	Check Item	Result	Action
1	Does M7 turn? Set the data of PWB-A (IC4A) BPC1 to “0.”	YES	Replace PWB-A.
		NO	Replace M7.

(4) C0070: Toner Replenishing Motor M8's Failure to Turn
C0071: Toner Replenishing Motor M8 Turning at Abnormal Timing

Relevant Electrical Parts	
• Toner Replenishing Motor M8 • Toner Hopper Home Position Sensor PC112	• Master Board PWB-A



C0070

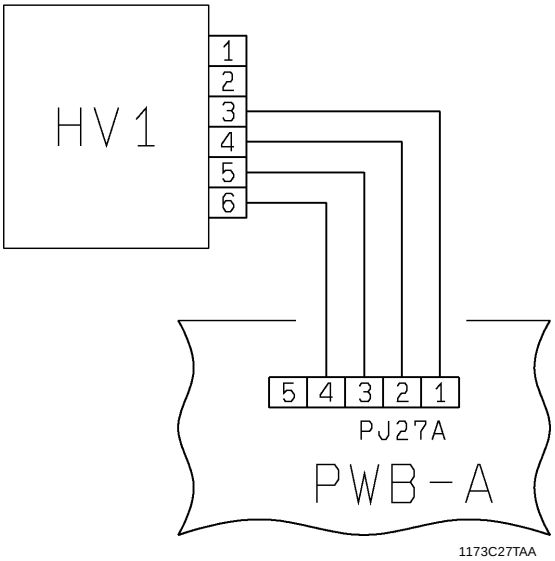
Step	Check Item	Result	Action
1	Turn the Toner Bottle a half turn by hand and close the Front Door. Does the Toner Bottle turn at this time?	NO	Go to step 3
2	Does PC112 operate properly? Make an input port check on PWB-A (IC5A) BPB7.	NO	Replace PC112.
3	Perform the "Controller Board Check." Is malfunction code "C0324" displayed?	YES	Replace PWB-A.
		NO	Replace M8.

C0071

Step	Check Item	Result	Action
1	Does M8 turn when the malfunction is reset?	YES	Replace PWB-A.
2	Is malfunction code "C0071" displayed again?	YES	Replace PWB-A.

(5) C0200: PC Drum / Image Transfer / Separator Charge Corona Malfunction

Relevant Electrical Parts	
• High Voltage Unit HV1	• Master Board PWB-A



Step	Check Item	Result	Action
1	Is the PC Drum / Image Transfer / Separator Charge Corona installed securely?	NO	Install it securely.
2	Is the corona housing dirty, the contacts deformed, or the wire dirty or broken?	YES	Clean or replace parts as necessary.
3	Perform the “Controller Board Check”. Is malfunction code “C031D” displayed?	YES	Replace PWB-A.
		NO	Replace HV1.

(6) C03##: Master Board/Harness Malfunctions

Relevant Electrical Parts	
• Master Board PWB-A	• Paper Feeder Option Master Board PWB-A

C0300 to C033D

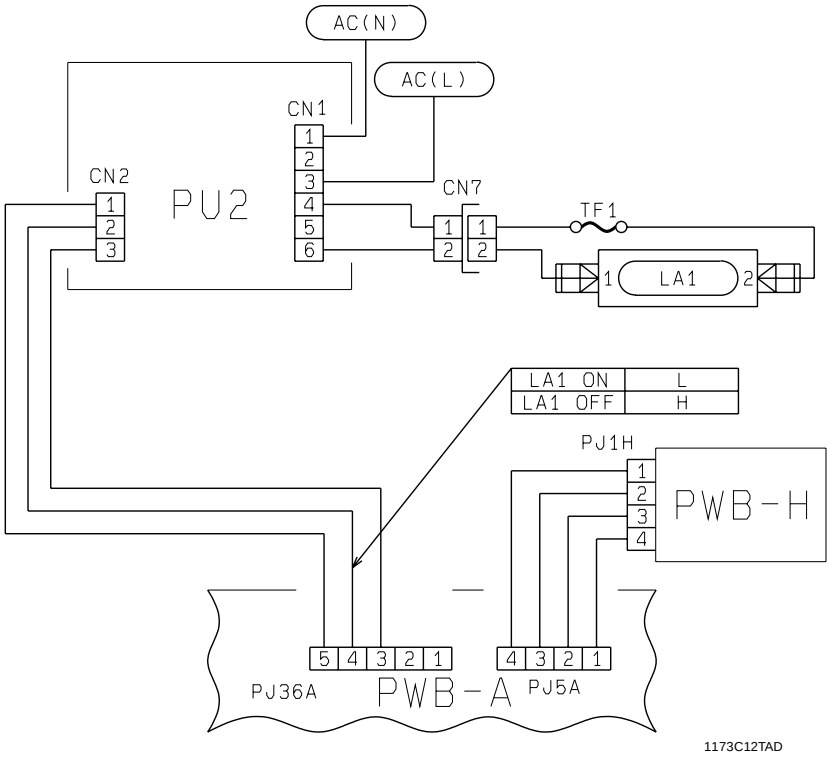
Step	Action
1	Replace EP3000/EP3010 PWB-A.

C0350, C0351, C0352

Step	Action
1	Check the connections from PJ22A on PWB-A to PJ2A on PWB-A of the paper feeder option.
2	Replace EP3000/EP3010 PWB-A.

(7) C0400: Exposure Lamp LA1's Failure to Turn ON
C0410: Exposure Lamp LA1 Turning ON at Abnormal Timing

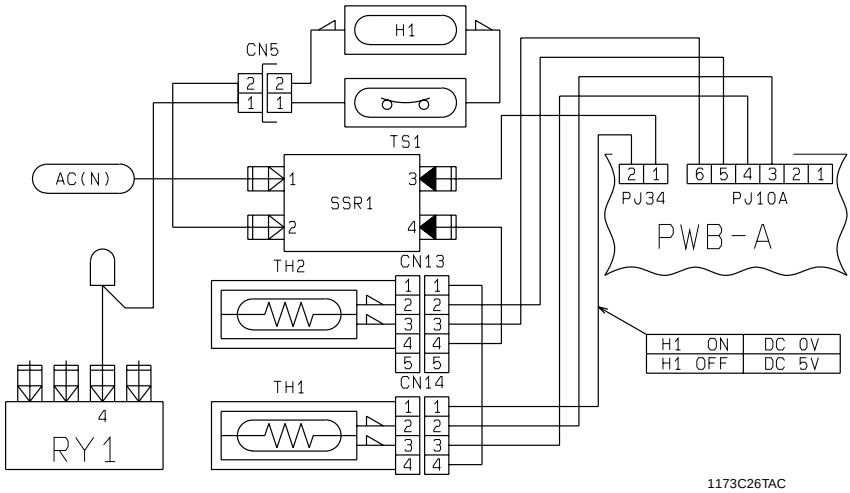
Relevant Electrical Parts	
• Exposure Lamp LA1 • Exposure Thermal Fuse TF1	• Exposure Lamp Regulator PU2 • AE Sensor Board PWB-H • Master Board PWB-A



Step	Check Item	Result	Action
1	Does the voltage across PWB-A PJ36A-4 and GND become DC0V (L) when the Start key is pressed?	YES	Go to step 2
2	Perform the “Controller Board Check”. Is malfunction code “C0312”, “C0313” or “C033C” displayed?	YES	Replace PWB-A.
3	Disconnect CN7. Is there continuity across CN7-1 and -2 on the LA1 side?	NO	Replace LA1 or TF1.
4	Is the voltage across PJ2-1 and -3 on PU2 a source voltage?	YES	Perform the “Controller Board Check”. Is malfunction code “C031E” displayed?
		NO	Check the power supply line.
5	Is the voltage across PWB-A PJ5A-2 and GND 3.9V or less when LA1 is off, the Scanner is at the home position, and the Original Cover is lowered?	YES	Replace PWB-H.
		NO	Replace PWB-A.

(8) C0500: Warming-up Failure
C0510: Abnormally Low Fusing Temperature
C0520: Abnormally High Fusing Temperature

Relevant Electrical Parts	
• Fusing Heater Lamp H1 • Fusing Thermoswitch TS1 • Fusing Thermistor 1 TH1 • Fusing Thermistor 2 TH2	• Fusing Heater Lamp SSR SSR1 • Master Board PWB-A



C0500, C0510

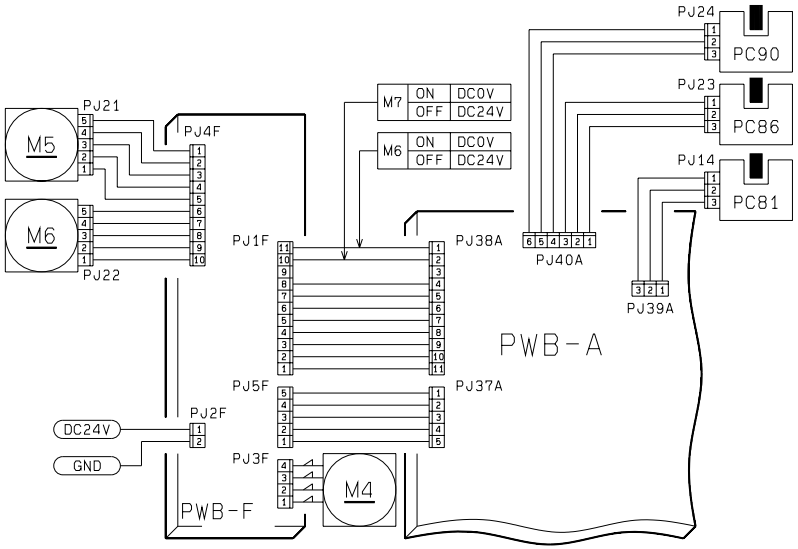
Step	Check Item	Result	Action
1	Does H1 light up when the Power Switch is turned ON?	NO	Go to step 5
2	Is TH1 installed properly?	NO	Reinstall TH1.
3	Is TH1 dirty?	YES	Clean or replace TH1.
4	Measure the resistance of TH1. Is it infinite?	YES	Replace TH1.
		NO	Replace PWB-A.
5	Perform the “Controller Board Check”. Is malfunction code “C0311” displayed?	YES	Replace PWB-A.
6	Check H1 for continuity. Is there continuity?	YES	Replace SSR1.
		NO	Replace H1 or TS1.

C0520

Step	Check Item	Result	Action
1	Does H1 remain lit after the copier has warmed up?	NO	Go to step 4
2	Perform the “Controller Board Check”. Is malfunction code “C0311” displayed?	YES	Replace PWB-A.
3	Does H1 turn OFF? Set the data of PWB-A (IC1A) P57 to “1”.	NO	Replace SSR1.
4	Is TH1 installed properly?	NO	Reinstall TH1.
5	Is TH1 dirty?	YES	Clean or replace TH1.
6	Measure the resistance of TH1. Is it 0Ω or close to 0?	YES	Replace TH1 (TH2).
		NO	Replace PWB-A.

(9) C0600: Scanner Motor M4 Malfunction
C06FX: Signal Failure
C0610: Lens Motor M5 Malfunction
C0620: Mirror Motor M6 Malfunction

Relevant Electrical Parts	
• Scanner Motor M4 • Lens Motor M5 • Mirror Motor M6 • Scanner Reference Position Sensor PC81	• Mirror Reference Position Sensor PC86 • Lens Reference Position Sensor PC90 • Motor Drive Board PWB-F • Master Board PWB-A



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C0600

Step	Check Item	Result	Action
1	Are all connectors on PWB-F plugged in securely?	NO	Plug them in securely.
2	When PC81 is blocked, does the voltage across PWB-A PJ39-1 and GND change from DC5V to DC0V?	YES	Check the Scanner Drive Cable for tension and overload. Or, replace PWB-A.
		NO	Replace PC81.
3	Is the Scanner drive faulty?	YES	Correct or replace the faulty part.
		NO	Replace PWB-F or M4.

C06F0 to C06Fb

Step	Check Item	Result	Action
1	Are PWB-A PJ37A, PJ38A and PWB-F PJ1F, PJ5F connected securely?	YES	Replace PWB-A or PWB-F.
		NO	Connect securely.

C0610

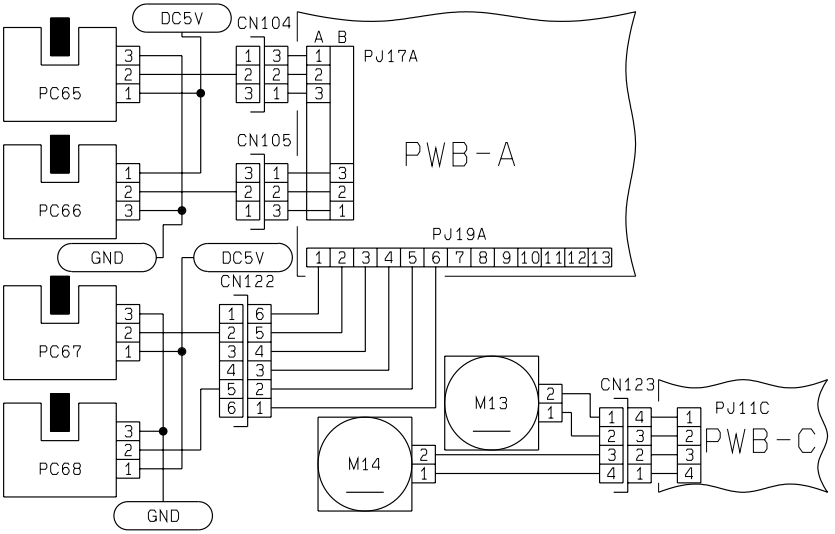
Step	Check Item	Result	Action
1	Are the connectors of PWB-F, M5 and PC90 plugged in securely?	NO	Plug them in securely.
2	When PC90 is blocked, does the voltage across PWB-A PJ40A-5 and GND change from DC5V to DC0V?	YES	Replace PWB-A.
		NO	Replace PC90.
3	Is the Lens drive faulty?	YES	Correct or replace the faulty part.
		NO	Replace PWB-F or M5.

C0620

Step	Check Item	Result	Action
1	Are the connectors of PWB-F, M6 and PC86 plugged in securely?	NO	Plug them in securely.
2	When PC86 is blocked, does the voltage across PWB-A PJ40A-2 and GND change from DC5V to DC0V?	YES	Replace PWB-A.
		NO	Replace PC86.
3	Is the Mirror drive faulty?	YES	Correct or replace the faulty part.
		NO	Replace PWB-F or M6.

(10) C0910: 2nd Drawer Upward Motion Failure
C0914: 2nd Drawer Paper Lift-Up Motor M14's Failure to Turn
C0920: 1st Drawer Upward Motion Failure
C0924: 1st Drawer Paper Lift-Up Motor M13's Failure to Turn

Relevant Electrical Parts	
• 1st Drawer Lift-Up Sensor PC65 • 2nd Drawer Lift-Up Sensor PC66 • 1st Drawer Lift-Up Motor Pulse Sensor PC67 • 2nd Drawer Lift-Up Motor Pulse Sensor PC68	• 1st Drawer Paper Lift-Up Motor M13 • 2nd Drawer Paper Lift-Up Motor M14 • Master Board PWB-A



C0910

Step	Check Item	Result	Action
1	Does PC66 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (IC3A) APB2.	YES	Replace PWB-A.
		NO	Check the operation of the Paper Take-Up Roll. If it is okay, replace PC66.

C0920

Step	Check Item	Result	Action
1	Does PC65 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (IC3A) APB1.	YES	Replace PWB-A.
		NO	Check the operation of the Paper Take-Up Roll. If it is okay, replace PC65.

C0914

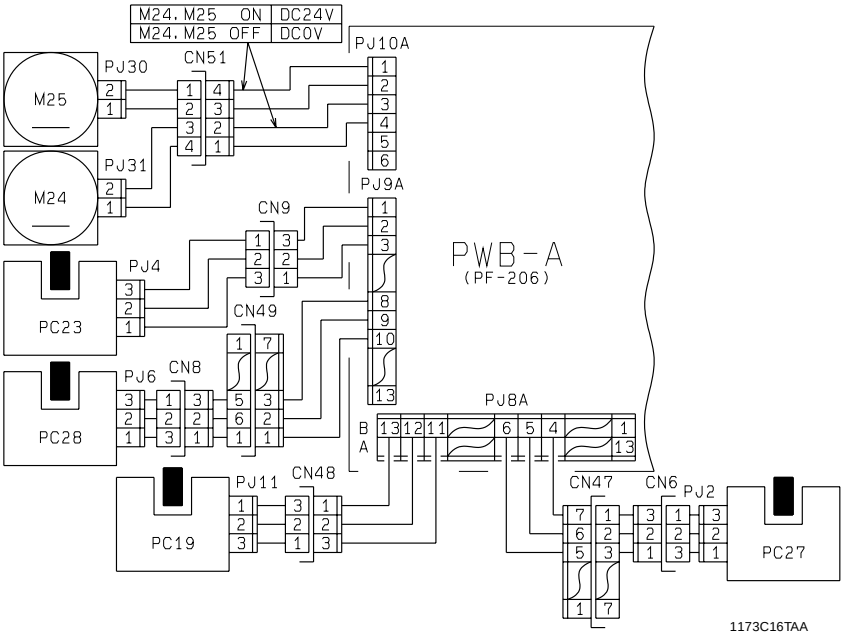
Step	Check Item	Result	Action
1	Slide out the 2nd Drawer and slide it back into the copier. Does M14 start to turn?	NO	Go to step 3
2	When the 2nd Drawer is slid back into the copier, does the voltage across PWB-A PJ16A-7 and GND change from DC5V to DC0V?	YES	Replace PWB-C or M14.
		NO	Replace PWB-A.
3	While M14 is turning, does the voltage across PWB-A PJ19A-5 and GND vary between DC0V and DC5V?	YES	Replace PWB-A.
		NO	Replace PC68.

C0924

Step	Check Item	Result	Action
1	Slide out the 1st Drawer and slide it back into the copier. Does M13 start to turn?	NO	Go to step 3
2	When the 1st Drawer is slid back into the copier, does the voltage across PWB-A PJ16A-5 and GND change from DC5V to DC0V?	YES	Replace PWB-C or M13.
		NO	Replace PWB-A.
3	While M13 is turning, does the voltage across PWB-A PJ19A-2 and GND vary between DC0V and DC5V?	YES	Replace PWB-A.
		NO	Replace PC67.

(11) C0900: 3rd Drawer Upward Motion Failure
C0904: 3rd Drawer Paper Lift-Up Motor M24's Failure to Turn
C0950: 4th Drawer Upward Motion Failure
C0954: 4th Drawer Paper Lift-Up Motor M25's Failure to Turn

Relevant Electrical Parts	
• 3rd Drawer Paper Lift-Up Sensor PC19 • 4th Drawer Paper Lift-Up Sensor PC23 • 3rd Drawer Paper Lift-Up Motor Pulse Sensor PC27 • 4th Drawer Paper Lift-Up Motor Pulse Sensor PC28	• 3rd Drawer Paper Lift-Up Motor M24 • 4th Drawer Paper Lift-Up Motor M25 • PF-206 Master Board PWB-A



C0950

Step	Check Item	Result	Action
1	Does PC19 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (200) (IC1A) PG3.	YES	Replace PWB-A (PF-206).
		NO	Check the operation of the Paper Take-Up Roll. If it is okay, replace PC19.

C0900

Step	Check Item	Result	Action
1	Does PC23 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (200) (IC1A) PF3.	YES	Replace PWB-A (PF-206).
		NO	Check the operation of the Paper Take-Up Roll. If it is okay, replace PC23.

C0904

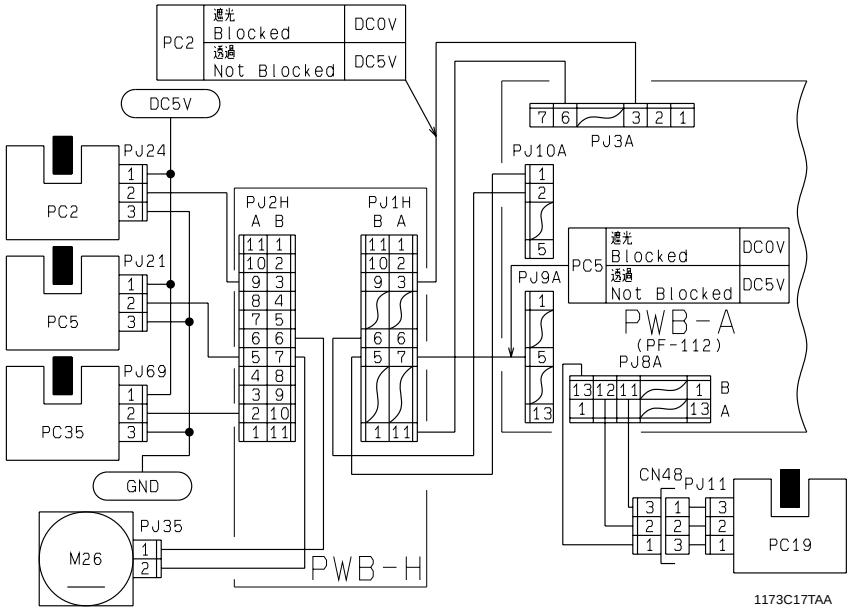
Step	Check Item	Result	Action
1	Slide out the 3rd Drawer and slide it back into the copier. Does M24 start to turn?	NO	Go to step 3
2	When the 3rd Drawer is slid back into the copier, does the voltage across PWB-A (PF-206) PJ10A-3 and GND change from DC0V to DC24V?	YES	Replace M24.
		NO	Replace PWB-A (PF-206).
3	While M24 is turning, does the voltage across PWB-A (PF-206) PJ8A-5B and GND vary between DC0V and DC5V?	YES	Replace PWB-A (PF-206).
		NO	Replace PC27.

C0954

Step	Check Item	Result	Action
1	Slide out the 4th Drawer and slide it back into the copier. Does M25 start to turn?	NO	Go to step 3
2	When the 4th Drawer is slid back into the copier, does the voltage across PWB-A (PF-206) PJ10A-1 and GND change from DC0V to DC24V?	YES	Replace M25.
		NO	Replace PWB-A (PF-206).
3	While M25 is turning, does the voltage across PWB-A (PF-206) PJ9A-9 and GND vary between DC0V and DC5V?	YES	Replace PWB-A (PF-206).
		NO	Replace PC28.

(12) C0990: Main Tray Upward Motion Failure
C0991: Main Tray Downward Motion Failure
C0992: Main Tray Downward Motion Failure
C0993: Main Tray Upward Motion Failure
C0994: Main Tray Elevator Motor M26's Failure to Turn

Relevant Electrical Parts	
• Main Tray Lower Position Sensor PC2 • Elevator Motor Pulse Sensor PC5 • 3rd Drawer Paper Lift-Up Sensor PC19 • Lower Limit Position Sensor PC35	• Main Tray Elevator Motor M26 • Cabinet Transport Board PWB-H • PF-112 Master Board PWB-A



C0990, C0991

Step	Check Item	Result	Action
1	Does PC19 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC1A) PG3.	YES	Replace PWB-A (PF-112).
		NO	Check the operation of the Paper Take-Up Roll. If it is okay, replace PC19.

C0992, C0993

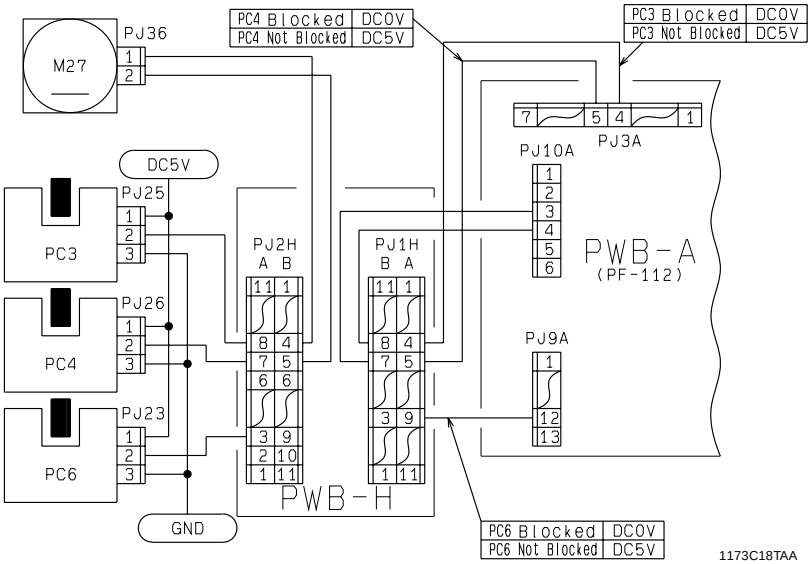
Step	Check Item	Result	Action
1	Does PC35 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC2A) PB3.	YES	Replace PWB-A (PF-112).
		NO	Replace PWB-H, flat cable or PC35.
2	Does PC2 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC2A) PC1.	YES	Replace PWB-A (PF-112).
		NO	Replace PC2, PWB-H or flat cable.

C0994

Step	Check Item	Result	Action
1	Does M26 turn when the Paper Descent Key is pressed?	YES	Go to step 3
2	When the Tray is slid in or the Paper Descent Key is pressed, does the voltage across PWB-A (PF-112) PJ10A-1 or PJ10A-2 and GND change from DC0V to DC24V?	YES	Replace M26, PWB-H or flat cable.
		NO	Replace PWB-A (PF-112).
3	While M26 is turning, does the voltage across PWB-A (PF-112) PJ9A-5 and GND vary between DC0V and DC5V?	YES	Replace PWB-A (PF-112).
		NO	Check the pulse disk and gear. Replace PC5.

(13) C0998: Shifter Transfer Failure
C0999: Shifter Return Failure
C099A: Shifter Return Failure
C099b: Shifter Transfer Failure
C099C: Paper Shift Motor M27's Failure to Turn

Relevant Electrical Parts	
• Shifter Home Position Sensor PC3 • Shifter Return Position Sensor PC4 • Shift Motor Pulse Sensor PC6	• Paper Shift Motor M27 • Cabinet Transport Board PWB-H • PF-112 Master Board PWB-A



C0998, C0999

Step	Check Item	Result	Action
1	Does PC4 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC2A) PD1.	YES	Replace PWB-A (PF-112).
		NO	Replace PC4, PWB-H or flat cable.

C099A, C099b

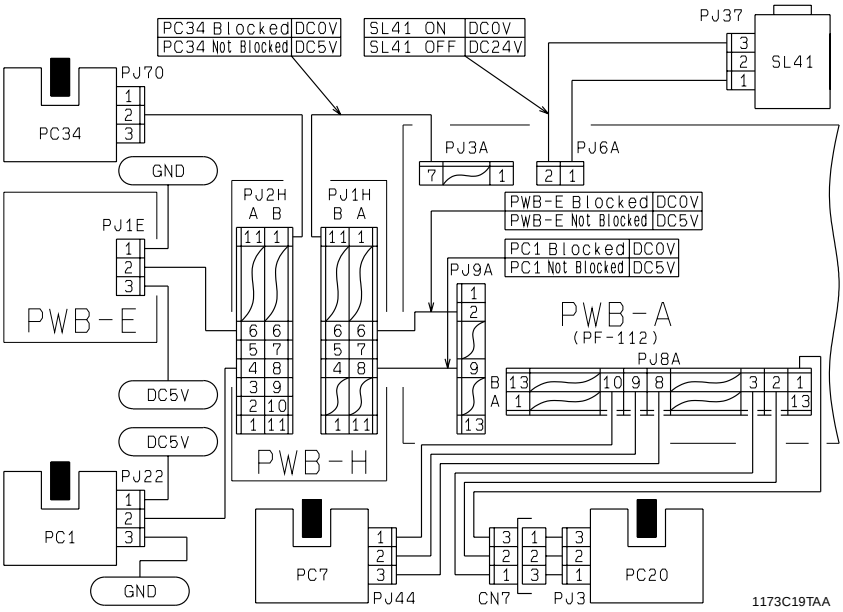
Step	Check Item	Result	Action
1	Does PC3 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC2A) PC0.	YES	Replace PWB-A (PF-112).
		NO	Replace PC3, PWB-H or flat cable.

C099C

Step	Check Item	Result	Action
1	Does M27 turn when the 3rd Drawer is slid into the copier with a paper stack loaded in the Shift Tray?	YES	Go to step 3
2	In step 1, does the voltage across PWB-A (PF-112) PJ10A-3 and GND change from DC0V to DC24V?	YES	Replace M27, PWB-H or flat cable.
		NO	Replace PWB-A (PF-112).
3	While M27 is turning, does the voltage across PWB-A (PF-112) PJ9A-12 and GND vary between DC0V and DC5V?	YES	Replace PWB-A (PF-112).
		NO	Check the pulse disk and gear. Replace PC6.

(14) C099E: Shift Gate Position Detecting Failure
C099F: Shift Gate Position Detecting Failure
C0996: 3rd Drawer Lock Release Failure
C0F79: Paper Empty Sensor Failure

Relevant Electrical Parts	
• Shift Tray Paper Empty Sensor PC1	• Shift Gate Position Detecting Sensor PC34
• 3rd Drawer Paper Empty Sensor PC20	• 3rd Drawer Lock Solenoid SL41
• Main Tray Paper Empty Board PWB-E	• Cabinet Transport Board PWB-H
• 3rd Drawer Set Sensor PC7	• PF-112 Master Board PWB-A



C099E, C099F

Step	Check Item	Result	Action
1	Does PC34 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC1A) PC1.	YES	Replace PWB-A (PF-112).
		NO	Replace PC34, PWB-H or flat cable.

C0996

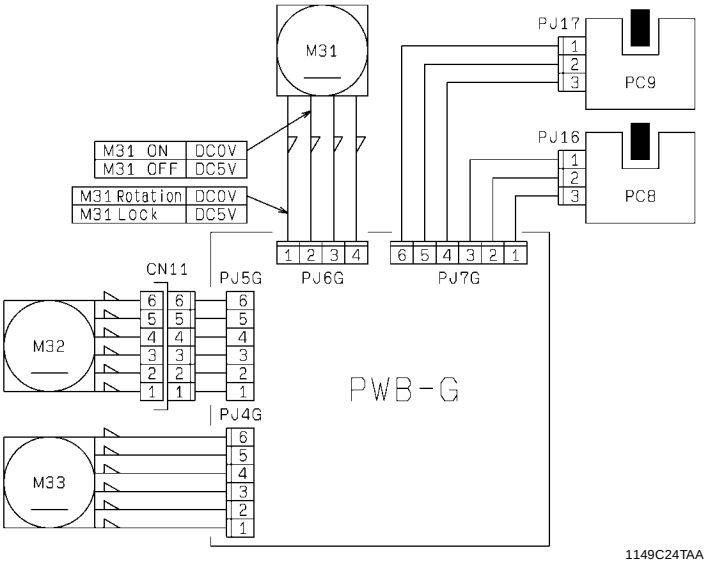
Step	Check Item	Result	Action
1	Does SL41 operate properly? Using the IC Port Data Check function, set the data of PWB-A (400) (IC2A) PA1 to “0”.	YES	Check the drawer lock mechanism.
		NO	Replace PWB-A (PF-112) or SL41.
2	Does PC7 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC1A) PG2.	YES	Replace PWB-A (PF-112).
		NO	Replace PC7, PWB-H or flat cable.

C0F79

Step	Check Item	Result	Action
1	Does PC20 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC1A) PC0.	YES	Replace PWB-A (PF-112).
		NO	Replace PC20, PWB-H or flat cable.
2	Does PWB-E operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC1A) PF3.	YES	Replace PWB-A (PF-112).
		NO	Replace PWB-E, PWB-H or flat cable.
3	Does PC1 operate properly? Using the IC Port Data Check function, make an input port check on PWB-A (400) (IC1A) PD1.	YES	Replace PWB-A (PF-112).
		NO	Replace PC1, PWB-H or flat cable.

(15) C0d00: Duplex Unit Front/Rear Edge Guide Plates Home Position Detection Failure
C0d20: Duplex Unit Gate Unit Home Position Detection Failure
C0d50: Duplex Unit Drive Motor M31's Failure to Turn
C0d51: Duplex Unit Drive Motor M31 Turning at Abnormal Timing

Relevant Electrical Parts	
• Duplex Unit Gate Home Position Sensor PC8 • Front/Rear Edge Guide Plate Home Position Sensor PC9 • Duplex Unit Drive Motor M31	• Gate Motor M32 • Front/Rear Edge Guide Drive Motor M33 • Duplex Unit Master Board PWB-G (AD-11)



C0d00

Step	Check Item	Result	Action
1	Does M33 turn when the Front/Rear Edge Guide Plates are moved to other than the home position and the Duplex Unit is slid in?	YES	Check for overload.
		NO	Replace M33 or PWB-G.
2	Does PC9 operate properly? Using the IC Port Data Check function, make an input port check on PWB-G (Dup) (IC1G) PC3.	YES	Replace PWB-G.
		NO	Replace PC9.

C0d20

Step	Check Item	Result	Action
1	Does M32 turn when the Gate Unit is moved to other than the home position and the Duplex Unit is slid in?	YES	Check for overload.
		NO	Replace M32 or PWB-G.
2	Does PC8 operate properly? Using the IC Port Data Check function, make an input port check on PWB-G (Dup) (IC1G) PE0.	YES	Replace PWB-G.
		NO	Replace PC8.

C0d50

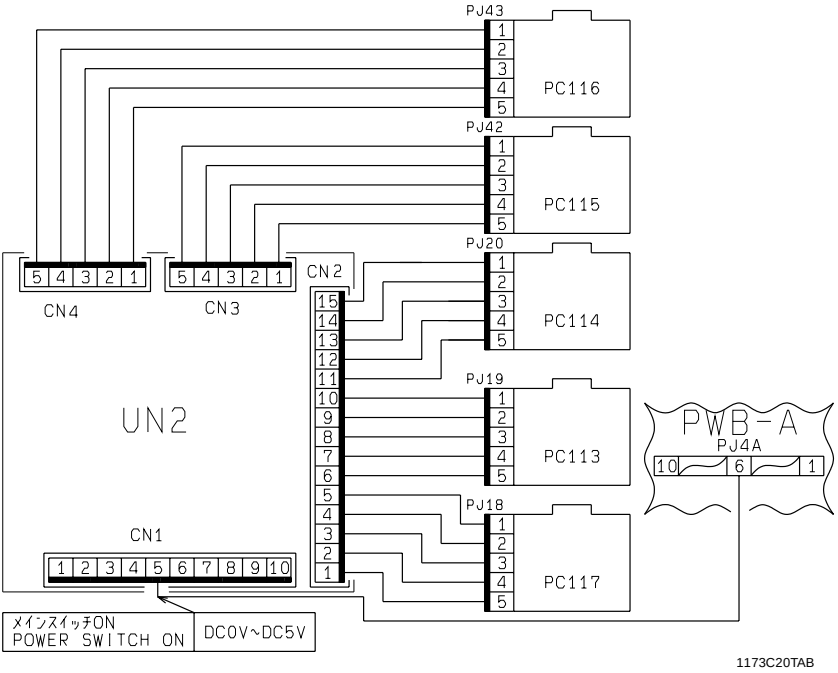
Step	Check Item	Result	Action
1	Does M31 start to turn? Using the IC Port Data Check function, set the data of PWB-A (Dup) (IC1G) PB3 to “0”.	YES	Check the drive coupling.
		NO	Replace M31 or PWB-G.

C0d51

Step	Check Item	Result	Action
1	Check the M31 lock signal when M31 is locked. Using the IC Port Data Check function, check that the data of PWB-A (Dup) (IC1G) PE1 is “L”.	YES	Replace M31.
		NO	Replace PWB-G.

(16) C0F02: Original Size Detecting Board UN2 Failure
C0FE1 to C0FFF: Original Size Detecting Sensor Failure

Relevant Electrical Parts	
• Original Size Detecting Sensor FD2 PC113 • Original Size Detecting Sensor DC1 PC114 • Original Size Detecting Sensor FD3 PC115 • Original Size Detecting Sensor CD2 PC116 • Original Size Detecting Sensor FD1 PC117	• Original Size Detecting Board UN2 • Master Board PWB-A



C0F02

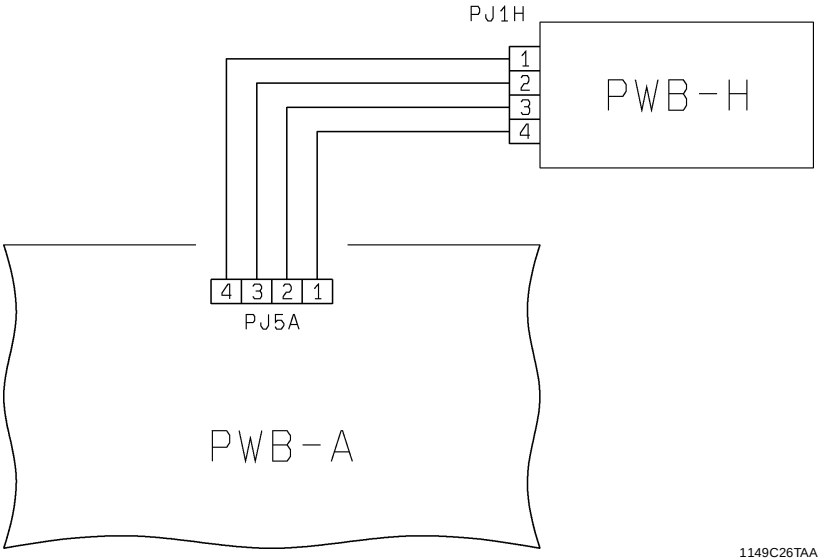
Step	Check Item	Result	Action
1	Are PJ17 on UN2 and PJ4A on PWB-A plugged in securely?	NO	Plug them in securely.
2	Does the voltage across PJ4A-6 on PWB-A and GND vary between DC0V and DC5V?	YES	Replace PWB-A.
		NO	Replace UN2.

C0FE1 to C0FFF

Step	Check Item	Result	Action
1	Are the jumper connectors plugged correctly into J1 and J2 on UN2?	NO	Change the jumper connector positions.
2	Is each Original Size Detecting Sensor installed in the correct position?	NO	Reinstall.
3	Is the malfunction code displayed again after the Original Size Detecting Sensor corresponding to the malfunction code has been replaced?	YES	Replace UN2 or PWB-A.

(17) C0F10: AE Sensor Board PWB-H Failure

Relevant Electrical Parts	
• AE Sensor Board PWB-H	• Master Board PWB-A



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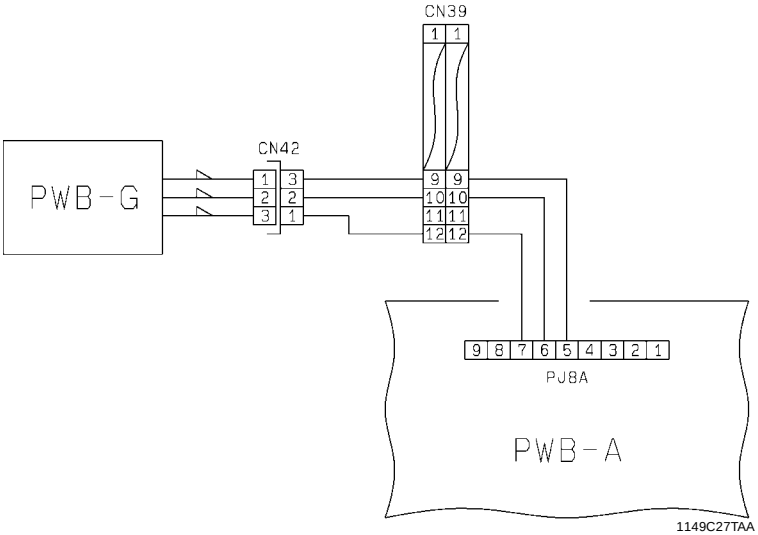
Step	Check Item	Result	Action
1	Is the voltage across PWB-A PJ5A-3 and GND less than DC0.18V when the Scanner is at the home position, the Exposure Lamp is OFF, and the Original Cover is lowered?	YES	Replace PWB-H.
		NO	Replace PWB-A.

(18) C0F20: AIDC Sensor Board PWB-G Variation Correction Failure
C0F22: AIDC Sensor Board PWB-G Grid Voltage Correction Failure
C0F23: AIDC Sensor Board PWB-G Exposure Correction Failure

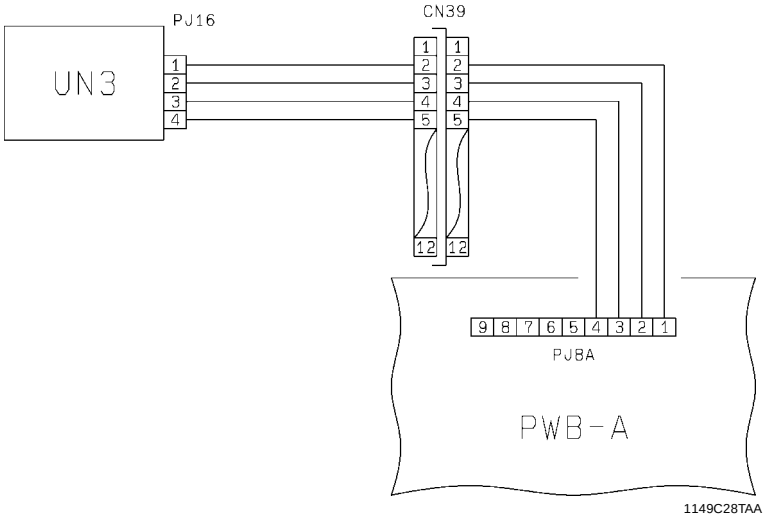
Relevant Electrical Parts	
• AIDC Sensor Board PWB-G	• Master Board PWB-A



Step	Check Item	Result	Action
1	Is PWB-A PJ8A plugged in securely?	NO	Plug it in securely.
2	Is CN39 plugged in securely?	NO	Plug it in securely.
3	Is PWB-G installed in the correct position?	NO	Reinstall.
4	Is the photo receiver or LED of PWB-G dirty?	YES	Clean.
		NO	Replace PWB-G or PWB-A.

(19) C0F30: ATDC Sensor UN3 Failure
C0F31: ATDC Sensor UN3 Failure

Relevant Electrical Parts	
• ATDC Sensor UN3	• Master Board PWB-A



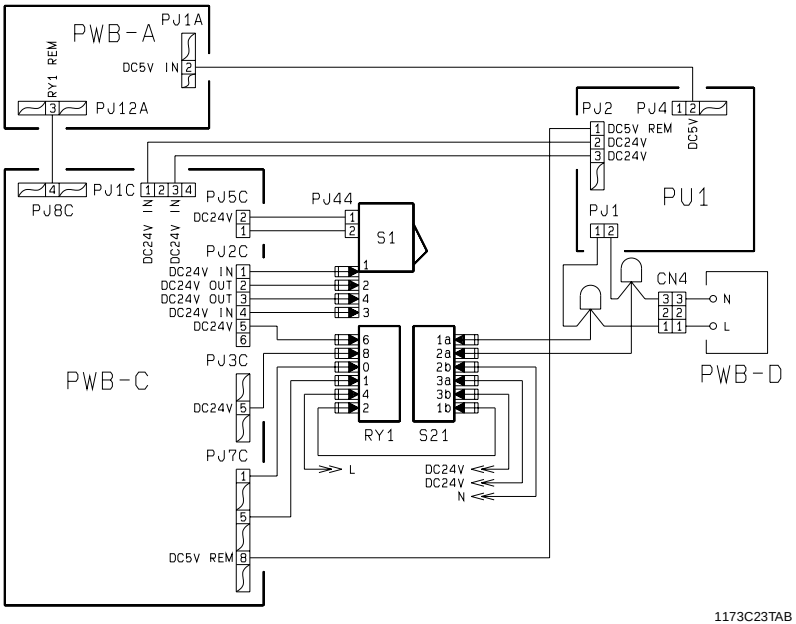
Step	Check Item	Result	Action
1	Is the malfunction code displayed "C0F31"?	YES	Go to step 3
2	Is the value for "ATDC Ref. Value" of "Level History" equal to the value given on the Adjust Label?	NO	Enter the value given on the Adjust Label.
3	Is PWB-A PJ8A plugged in securely?	NO	Plug it in securely.
4	Is CN39 plugged in securely?	NO	Plug it in securely.
5	Is UN3 installed in the correct position?	NO	Reinstall.
6	Is the voltage across PWB-A PJ8A-3 and GND in the range between DC0.6V and DC4.5V when PC Drive Motor M1 is turning?	YES	Replace PWB-A.
		NO	Replace UN3.

4-3. Power Malfunctions

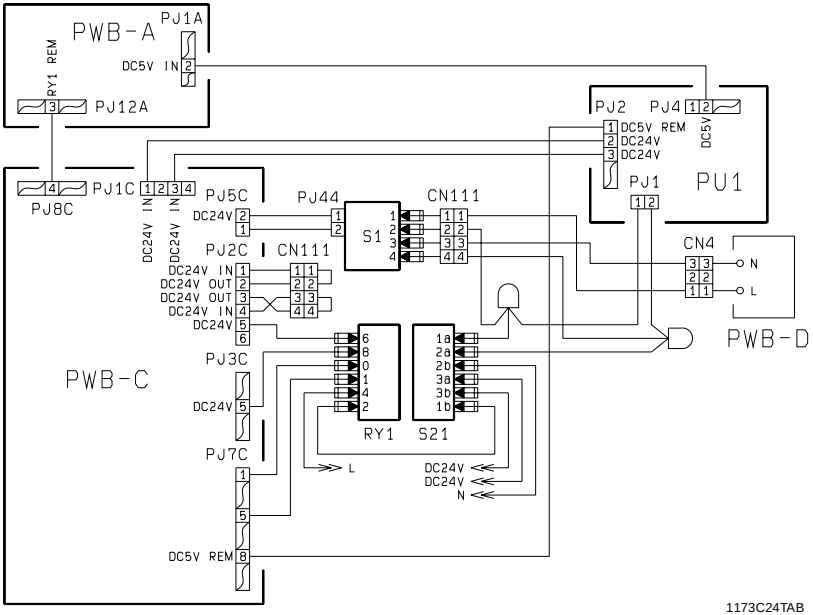
(1) Main Relay Does Not Turn ON

Relevant Electrical Parts	
• Power Switch S1 • Main Relay RY1 • Power Supply Unit PU1	• Master Board PWB-A • Power Supply Board PWB-C • Noise Filter Board PWB-D • RAM Board PWB-R

Except European Areas



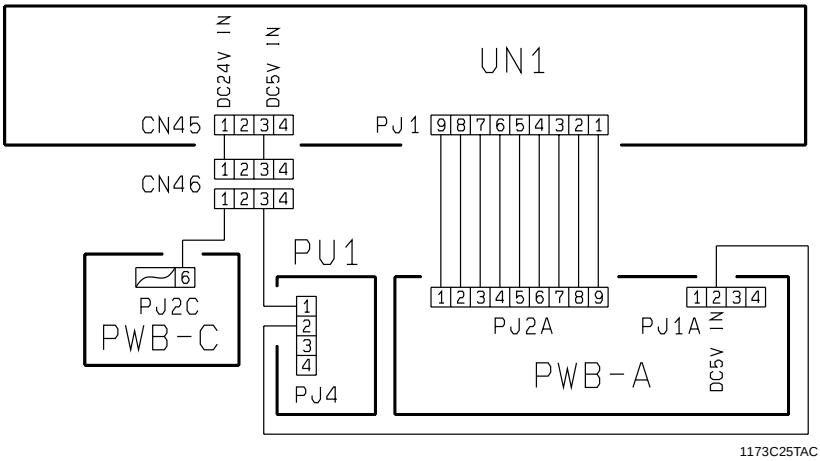
European Areas



Step	Check Item	Result	Action
1	Is the source voltage applied to the circuit across PJ1-1 and -2 on PU1?	NO	Replace PWB-D. Check the wiring of S1.
2	Is the voltage across PJ2-2 and 3 on PU1 and GND DC24V?	NO	Check the fuse on PU1. If it is normal, replace PU1.
3	When S1 is turned ON, is the voltage across PJ2C-1 and 4 on PWB-C and GND DC24V?	NO	Check CN111 (only European areas). Check the wiring between PWB-C and S1. If it is normal, replace PWB-C or S1.
4	When S1 is turned ON, is the voltage across PJ4-2 on PU1 and GND DC5V?	NO	Check the wiring between PWB-C and PU1. If it is normal, replace PWB-C or PU1. Check the wiring of S1.
5	Does LD1A on PWB-A light up?	NO	Check the wiring between PU1 and PWB-A.
6	Is the wiring between PWB-A, PWB-C, S21 and RY1 normal?	YES	Replace PWB-A, PWB-C, S21 and RY1 in this order.
		NO	Correct the wiring or replace the harness.

(2) Main Relay Turns ON But the Control Panel Gives No Display

Relevant Electrical Parts	
• Power Supply Unit PU1 • Control Panel UN1	• Master Board PWB-A • Power Supply Board PWB-C



Step	Check Item	Result	Action
1	Is the voltage across PJ2C-6 on PWB-C and GND DC24V?	NO	Check the wiring between PWB-C and UN1. If it is normal, replace PWB-C.
2	Is the connection between PWB-A and UN1 normal?	YES	Replace PWB-A or UN1.
		NO	Correct the wiring or replace the harness.

4-4. Miscellaneous

- The message “Stabilizing Image Controller not run.” appears on the Touch panel

Condition	Detection Timing
T/C is less than 4% when an F5 operation is run (initial adjustment).	• When memory clear is run. • “PC Drum” of “Port/Option” counter is cleared. • AIDC Sensor Board PWB-G develops a malfunction.

<Procedure>

Step	Check Item	Result	Action
1	Is “ATDC Current Level” of “Level History” available from the Tech. Rep. mode less than 4%?	YES	Run the auxiliary toner replenishing cycle and then an F5 operation.
2	Run an F5 operation again.	—	———————

5 IMAGE FAILURE

5-1. Image Failure Troubleshooting

Image failures have many possible causes. For troubleshooting, it is necessary to determine whether a failure is attributable to a basic cause or any other cause.
In this chapter, troubleshooting is divided into “initial checks” and “troubleshooting procedures classified by image failure”. If an image failure has occurred, first make the initial checks, then proceed to the corresponding image failure troubleshooting procedure.

5-2. Initial Checks

1. Place of installation
- Is the source voltage normal? Does the voltage vary greatly?
- Is the copier installed in a hot, humid place or in a place where temperatures vary sharply?
- Is the copier installed in a dusty place?
- Is the copier subjected to direct sunlight?
- Is the copier level?

2. Copy paper
- Is the recommended paper used?
  ➨Load recommended paper and make copies to see if the problem persists.
- Is the paper damp?
  ➨Load new paper and make copies to see if the problem persists.

3. Original
- Does the original used have a reddish background or is it written in light pencil?
  ➨Use the Test Chart to check the image.
- Is the original transparent or are transparencies being used?
  ➨Cover with white paper and make a copy.
- Are the Original Glass and ADF Transport Belt dirty or scratched?
  ➨If dirty, clean with alcohol. If scratched, replace.

4. Adjust data and Level History data
- Are the set values of “Adjust” and “Level History (ATDC Level)” in the Tech. Rep. mode equal to the value given on the Adjust Label on the back of the Front Door?
  ➨When installing the Developing Unit of another copier containing its own developer, input the ATDC Level value of that copier.

5. PM parts (supplies)
- Have the PM parts (supplies), such as the PC Drum, Cleaning Blade, AIDC Sensor and corona wires, reached the end of their cleaning/replacement cycles?

6. Adjustment items (registration, focus, AE level, etc.)

- Among the adjustment items given in DIS/REASSEMBLY, ADJUSTMENT, is there any adjustment that may remedy the image failure?

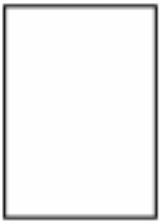
7. Controller Board Check

- Is a malfunction code displayed when “Controller Board Check” in the Tech. Rep. mode is run?

5-3. Troubleshooting Procedures Classified by Image Failures

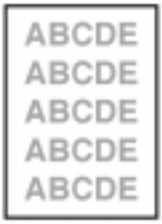
<Image Failure Samples>

1. Blank Copy

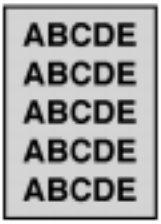


2. Black Copy

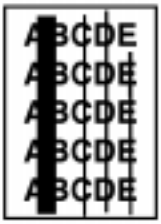
3. Low image density



4. Foggy background



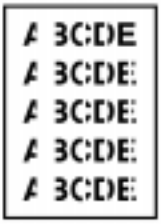
5. Black streaks or bands



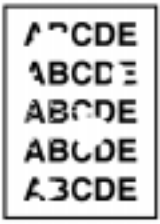
Feeding Direction

6. Black spots

7. Blank streaks or bands

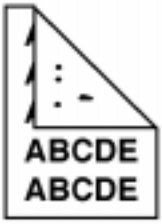


8. Void areas



Feeding Direction

9. Smear on back



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1. Blank Copy

Cause	Step	Check Item	Result	Action
Charging failure	1	Is the PC Drum Charge Corona installed correctly?	NO	Install correctly.
	2	Are the PC Drum Charge Corona wire and grid mesh normal?	NO	Check and replace if necessary.
	3	Is the wiring between High Voltage Unit HV1 and corona wire normal?	YES	Replace HV1.
			NO	Correct the wiring.
Developing Unit out of position	4	Is the PC Unit inserted all the way into position?	NO	Fully tighten the knob.
	5	Are the Ds Rolls in contact with the PC Drum?	NO	Reinstall the Developing Unit.
	6	Is the Developing Unit connector plugged in?	NO	Plug it in.
	7	Is the drive transmission to the Developing Unit normal?	NO	Check and replace parts if necessary.
Image transfer failure	8	Is the Image Transfer Corona wire normal?	NO	Check and replace if necessary.
	9	Is the wiring between High Voltage Unit HV1 and corona wire normal?	YES	Replace HV1.
			NO	Correct wiring.
Paper guide shorting	10	Is the paper guide shorted to the frame?	YES	Connect the paper guide through the resistor to frame.

2. Black copy

Cause	Step	Check Item	Result	Action
PC Drum grounding failure	1	Is the PC Drum properly grounded?	NO	Clean or replace the PC Drum Ground Plate.
Developing bias failure	2	Is the developing bias contact normal?	NO	Clean or replace the developing bias contact.
	3	Is the developing bias harness normal?	YES	Replace the High Voltage Unit.
			NO	Replace the harness.
Light path failure	4	Has condensation formed on the mirrors, lens, or PC Drum?	YES	Clean the mirrors and lens, and run the Drum Dehum. operation.
	5	Are the mirrors installed properly?	NO	Reinstall the mirrors.
Exposure Lamp's failure to turn ON	6	Does the Exposure Lamp light up?	NO	Take the action for malfunction code C0400.

3. Low Image Density

Cause	Step	Check Item	Result	Action
PC Drum life	1	Does the PC Drum have enough service life?	NO	Replace the PC Drum.
	2	Do the fan motors turn properly? (Ozone deterioration, temperature rise)	NO	Troubleshoot the fan motors.
PC Drum grounding failure	3	Is the PC Drum properly grounded?	NO	Clean or replace the PC Drum Ground Plate.
Drum charge failure	4	Are the PC Drum Charge Corona wire and grid mesh normal?	NO	Check and replace if necessary.
	5	Is the wiring between High Voltage Unit HV1 and corona wire normal?	YES	Replace HV1.
			NO	Correct the wiring.
Optical failure	6	Are the mirrors and lenses dirty or covered with condensation?	YES	Clean the mirrors and lenses.
Image transfer failure	7	Is the Image Transfer Corona dirty?	YES	Clean the Image Transfer Corona and replace the wire.
	8	Is the copy paper damp?	YES	Replace copy paper and instruct the user in how to store paper and to keep the copier plugged in during the night.
Developing failure	9	Is Db adjusted properly?	NO	Make Db adjustment.
	10	Are the Ds Rolls in contact with the PC Drum?	NO	Reinstall the Developing Unit.
	11	Is the developing bias contact normal?	NO	Clean or replace the developing bias contact.

4. Foggy background

Cause	Step	Check Item	Result	Action
Cleaning failure	1	Is the Cleaning Blade dirty with foreign matter, paper dust, etc. or is it scratched?	YES	Change the Cleaning Blade.
Optical failure	2	Is the mirror or lens dirty?	YES	Clean the mirror or lens.
PC Drum failure	3	Is the PC Drum dirty with foreign matter, etc.?	YES	Clean or replace the PC Drum. Replace the Cleaning Blade if necessary.
	4	Is the PC Drum properly grounded?	NO	Clean or replace the PC Drum Ground Plate.
Developing failure	5	Is the Sleeve Roller abnormally dirty?	YES	Clean the Sleeve Roller. Check the Developer Scattering Prevention Seal to see if it is deformed or dirty.
	6	Is the developing bias contact normal?	NO	Clean or replace the developing bias contact.
Main Erase Lamp failure	7	Does the Main Erase Lamp light up properly?	NO	Replace the Main Erase Lamp.
	8	Is the Main Erase Lamp dirty?	YES	Clean the Main Erase Lamp.
AIDC Sensor failure	9	Is the AIDC Sensor clean or installed properly?	NO	Clean or reinstall the AIDC Sensor and execute F5.
	10	Is the AIDC halftone pattern dirty?	YES	Using care not to scratch, wipe the pattern with a dry soft cloth and execute F5.

5. Black Streaks or Bands

Cause	Step	Check Item	Result	Action
Uneven charging	1	Are the PC Drum Charge Corona wire and grid mesh dirty?	YES	Clean or replace the PC Drum Charge Corona. Check the operation of the toner charging mechanism.
Cleaning failure	2	Is the Cleaning Blade dirty with foreign matter, paper dust, etc., or is it scratched?	YES	Replace the Cleaning Blade.
	3	Does the Cleaning Blade make a correct lateral motion?	NO	Check the operation of the Cleaning Blade.
PC Drum failure	4	Is the PC Drum surface dirty or scratched?	YES	Replace the PC Drum. If necessary, replace the Cleaning Blade.
PC Drum Paper Separator Fingers	5	Are the PC Drum Paper Separator Fingers dirty, deformed or faulty in operation?	YES	Clean or replace the PC Drum Paper Separator Fingers.
Fusing failure	6	Is the Upper Fusing Roller dirty or scratched?	YES	Clean or replace the Upper Fusing Roller.
	7	Are the Upper Paper Separator Fingers dirty or deformed?	YES	Clean or replace the Upper Paper Separator Fingers.
Optical failure	8	Is the mirror or lens dirty with foreign matter?	YES	Clean the mirror or lens.

6. Black Spots

Cause	Step	Check Item	Result	Action
PC Drum failure	1	Is the PC Drum surface scratched or dirty with foreign matter?	YES	Clean or replace the PC Drum. If necessary, replace the Cleaning Blade.
Fusing failure	2	Is the Upper Fusing Roller dirty or scratched?	YES	Check the Fusing Thermistors. Clean or replace the Upper Fusing Roller.
Developing failure	3	Is the amount of toner on the Sleeve Roller proper?	YES	Go to step 7
	4	Is the toner-to-carrier ratio relatively high?	YES	Change the toner-to-carrier ratio.
	5	Is the Db value normal?	NO	Make Db adjustment.
	6	Is the Developer Scattering Prevention Seal deformed or dirty?	YES	Clean or replace the Developer Scattering Prevention Seal.
Dirty PC Drum Paper Separator Fingers	7	Are the PC Drum Paper Separator Fingers dirty or deformed?	YES	Clean or replace the PC Drum Paper Separator Fingers.

7. Blank Streaks or Bands

Cause	Step	Check Item	Result	Action
Plugged Db	1	Is the Db plugged with foreign matter, caked toner, etc.?	YES	Remove foreign matter. If the problem persists, replace the developer.
Drum charge failure	2	Are the PC Drum Charge Corona wire and grid mesh dirty?	YES	Clean or replace the PC Drum Charge Corona.
	3	Is the Drum Charge Corona Wire Cleaner at the home position?	NO	Check the corona wire cleaning mechanism.
Image transfer failure	4	Is the Image Transfer Corona wire dirty?	YES	Clean or replace the Image Transfer Corona.
	5	Is the Corona Wire Cleaner at the home position?	NO	Check the corona wire cleaning mechanism.
Defective PC Drum Paper Separator Fingers	6	Are the PC Drum Paper Separator Fingers dirty or deformed?	YES	Clean or replace the PC Drum Paper Separator Fingers.
Image Erase Lamp lit at abnormal timing	7	Does the Image Erase Lamp light up at abnormal timing?	YES	Check the Image Erase Lamp.
Fusing failure	8	Is the Upper Fusing Roller dirty or scratched?	YES	Clean or replace the Upper Fusing Roller.
	9	Are the Upper Paper Separator Fingers dirty or scratched?	YES	Clean or replace the Upper Paper Separator Fingers.

8. Void Areas

Cause	Step	Check Item	Result	Action
Image transfer failure	1	Is the Image Transfer Corona installed correctly?	NO	Reinstall.
	2	Is the Image Transfer Corona wire dirty?	YES	Clean or replace the Image Transfer Corona wire.
Damp copy paper	3	Is the image improved by loading new paper?	YES	Change the copy paper and instruct the user in how to store paper and to keep the copier plugged in during the night.
Small amount of toner supplied	4	Is toner uniformly attracted onto the Sleeve Roller?	NO	Check the Db value and developer amount, and check the operation of the Bucket Roller.
PC Drum condensation	5	Is the image improved by running Drum Dehum.?	YES	Run Drum Dehum. and instruct the user to take further action.
Paper guide shorting	6	Is the paper guide shorted to the frame?	YES	Connect the paper guide through the resistor to the frame.
Fusing failure	7	Is the Lower Fusing Roller scratched or deformed?	YES	Replace the Lower Fusing Roller.

9. Smear on Back

Cause	Step	Check Item	Result	Action
Dirty Developing Unit	1	Is the bottom part of the Developing Unit dirty?	YES	Clean and check the Developer Scattering Prevention Seal.
Dirty Image Transfer Corona	2	Is the Image Transfer Corona dirty?	YES	Clean the corona and check the Developing Unit.
	3	Is the Pre-Image Transfer Guide Plate dirty?	YES	Clean the guide plate and check the Developing Unit.
Dirty Suction Unit	4	Are the Suction Belts dirty?	YES	Clean the Suction Belts and check the Developing Unit.
Dirty Fusing Unit	5	Is the Fusing Unit Entrance Guide Plate dirty?	YES	Clean the guide plate and check the Developing Unit.
	6	Are the Upper and Lower Fusing Rollers dirty?	YES	Clean or replace the Upper and Lower Fusing Rollers and check the Fusing Roller cleaning mechanism.